MARSHALL ISLANDS

A HEALTH CARE PROPOSAL IN RESPONSE TO P.L. 96-205 and RFP # 14-01-0001-80-R-75

Prepared by
LOMA LINDA UNIVERSITY SCHOOL OF HEALTH

Submitted to the
Department of the Interior

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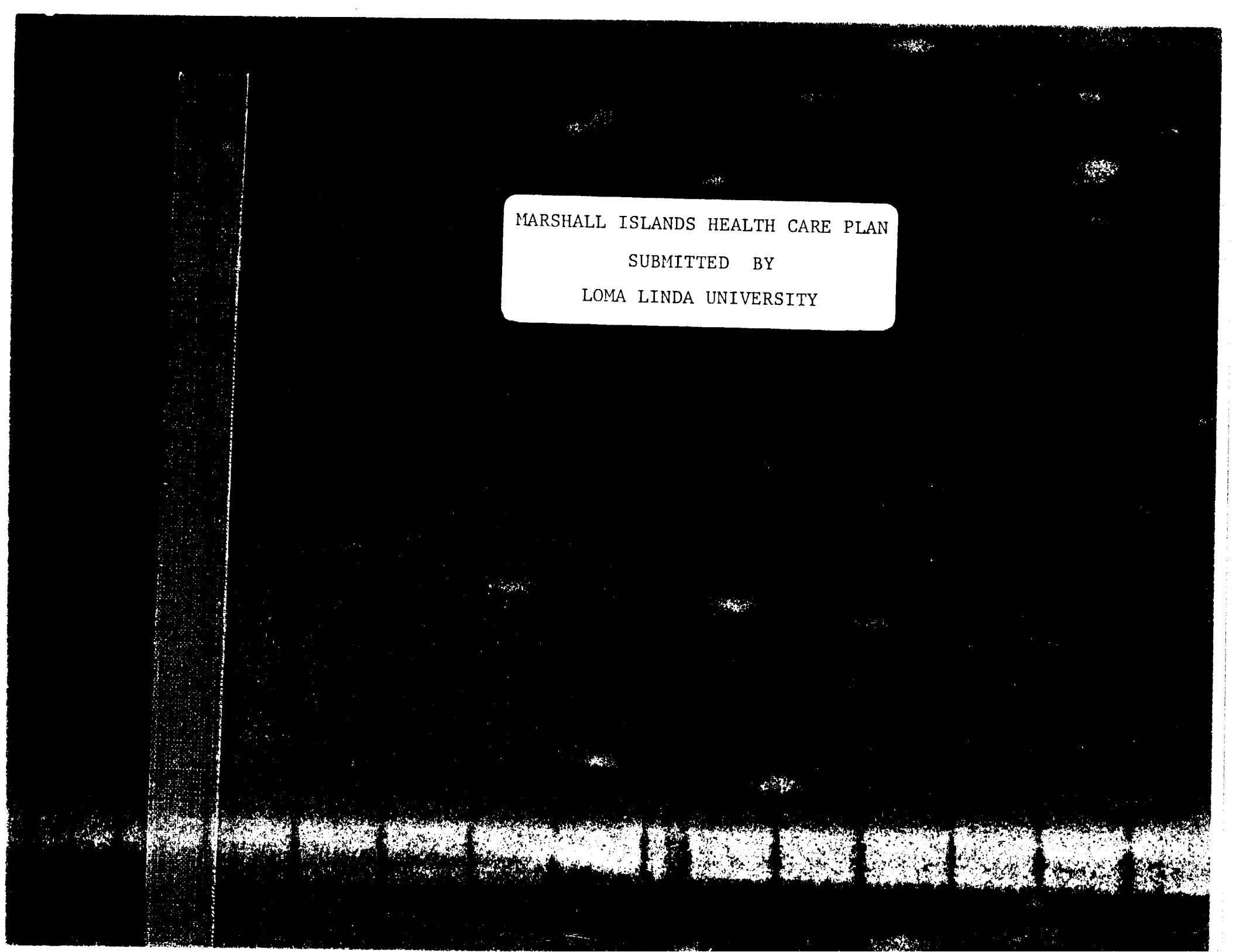
MARSHALL ISLANDS HEALTH CARE PLAN
SUBMITTED BY
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I. Introduction

A. Scope and Purpose

P.L. 96-205 requires the Department of Interior (DOI) to develop an "integrated, comprehensive health care program" with respect to the peoples of the Marshall Islands. Pursuant to P.L. 96-205 and the resulting request for proposals from the Department of Interior, there has been considerable discussion on the exact scope of the law and what people and activities should be included. Further clarification with DOI has stipulated that the contractor (Loma Linda University) prepare two health plans, as follows:

1. "Comprehensive Care (Primary, Secondary, and Tertiary) for the peoples of Rongelap, Utirik, Bikini, and Enewetak,"
2. "Comprehensive Care as in 1. . . ., plus comprehensive care for the peoples of all other atolls of the Marshall Islands."

In addition, comments and estimates will be provided regarding use of different types of U.S. personnel. It is clear, however, that extensive use of expatriates in primary care roles is both impractical and politically unacceptable.

To avoid excessive duplication, the current situation and recommendations regarding the comprehensive plan for all of the Marshall Islands will be presented first. Then the components of that plan necessary for adequate primary, secondary and tertiary care for the people of Rongelap, Utirik, Bikini, and Enewetak will be identified.

B. Sources of Information

The Loma Linda University team of 22 members spanned many disciplines and backgrounds, with a considerable depth of experience and expertise in health care planning and delivery in the developing world (see appendix E).

In gathering background and source material for this survey and plan, many organizations were contacted. Among the most important were: the Trust Territory governmental headquarters in Saipan currently phasing down, Brookhaven National Laboratory, Lawrence Livermore Laboratory, the University of Hawaii/East-West Center, University of the South Pacific in Fiji, College of Micronesia in Ponape and Saipan, and a number of other institutions and organizations involved in work in the Marshalls.

The Marshall Islands Government has served as a most important source of information, insight, understanding and background. We were fortunate to meet with the king, president, ministers of health, finance, resources and development, communication, the chief secretary, many of the other ministerial secretaries, and personnel in the operational levels within the health department. Also brought into discussions were the Guam-Micronesia Mission subcontractors who are currently managing the health care system.

Half of the atolls and islands were visited, including: Majuro, Ebeye, Enewetak, Rongelap, Utirik, Mejit, Wotje, Likiep, Maloelap, Ailinglapalap, Arno, Jaluit and Mili. Visits on these islands were all well received and useful. The team was able to visit and study both hospitals, both super clinics, and over a third of the dispensaries. On each island the team met with local leaders, magistrates, Iroij, alab, councils, chief secretary representatives, health personnel, and other local people. Many extensive group meetings were held. Four survey instruments were used, dealing with the health facilities, clinic personnel, general information, environmental and resident needs assessment (samples are in Appendix G). These surveys gathered a great deal of information, from which plans applicable to currently existing needs and project demands can be built.

C. Assumptions

The following represent major activities that are being implemented by the Marshallese Government independent of the existing health budget. They obviously impact the health care system and this proposal, so its relationship to each is discussed.

1. Majuro Hospital

Plans are currently being discussed regarding the building of a new hospital in Majuro. The current hospital is in poor physical condition and the land where it is located "must" be returned to its owner at the end of the 25 year lease in 1981. The possibility of constructing an "interim" facility is being considered, which could later serve as an outpatient clinic. Neither the advisability of rebuilding vs. renovating nor the budgetary implications are dealt with in this proposal.

2. Nursing School

The Board of Regents, College of Micronesia has recently voted to move its nursing school from Saipan to Majuro. Funding for this move, buiilding requirements on Majuro, available faculty, etc. are unclear at the present

time. Nursing manpower development has been budgeted for in this proposal, irrespective of the school location, though this will obviously have a budgetary impact. No expenses related to relocating the school have been budgeted.

3. Inter-Atoll Transportaiton

The usual transportation among the outer atolls is by copra field ship. Recently the Airline of the Marshall Islands was formed and the government plans to expand the number of airstrips within the next two years so essentially all atolls can be reached by air. This proposal assumes this transportation expansion will be realized and can be utilized for health needs, e.g. supervision, supply distribution and patient referral.

4. Intra Lagoon Transportation

The government has already initiated plans for each atoll to have a lagoon boat available for transportation between islands. This is important for patient evacuation and supply distribution to those islands of each atoll which are some distance from the "main" island with the airstrip and medical assistant with his better skills and supplies.

5. Communication

Several sections (e.g. police, etc.) of the government have finalized plans to install a multiplex radio communication system using solar power on each atoll. This will be an indispensable part of the health care system and a partial budget for ancillary equipment is included in this proposal.

II. Executive Summary

A. Because of significant time limitations and an already existing 5-year plan for the Marshall Islands (1981-86) developed by the Trust Territory of the Pacific Islands, Loma Linda University concentrated more on developing a health strategy proposal than a detailed health plan. Particular attention was paid to the issues involved in a national vs. 4 atoll health care system.

B. The Trust Territory of the Pacific Islands is currently phasing down. Many functions previously covered by that office, i.e. licensing, planning, personnel, etc. will need to be assumed by the Marshall Island Government.

C. Existing health care financing in the Marshalls comes partly from the U.S. and partly from internal Marshallese sources. It is recommended that additional monies available from P.L. 96-205 be combined with these existing funds rather than components of the health care system receive monies from different unrelated budgetary sources.

D. There are minimal radiation related health effects evident in the Marshalls. The primary need is for a basic health care system capable of providing primary, secondary and tertiary care. The system should have an awareness of a radiation effects as an integral and identifiable component of comprehensive care.

E. The Government of the Marshall Islands is seeking to rapidly expend its air, ship and radio communication with the outer atolls. Rather than attempt to develop a distribution referral and supervision system for health ahead of outer sectors, at an exorbitant cost, it is recommended that the health care system be built around these current inadequacies.

F. One of the biggest detriments to basic health are, even on Majuro and Ebeye, is lack of adequate supplies and maintenance. It is imperative that a strong support system be developed to meet this need.

G. The primary care will be built on medical assistants and health assistants on Majuro and Ebeye as well as the outer islands. Small populations with minimal work loads are adequately covered by these workers, with consultation from the hospital physicians, either verbally via radio or by referral, for the more difficult cases.

H. Secondary and selected tertiary care will be made available within the hospitals on Majuro and/or Ebeye. This will require improvement in the physical plants, equipment, and manpower, but should decrease the expensive referrals to Hawaii.

I. The current contract between the Guam-Micronesia Mission of Seventh-day Adventists and the Marshall Island Government will be continued, but limited to secondary and tertiary care. The Seventh-day Adventist Church has demonstrated competence in hospital management and has won the confidence of the Marshallese Government. It would have difficulty adequately developing and staffing the other components of the health care system.

J. Though specific timetables are not developed, the assumption in this proposal is that the Marshall Island Government should push toward self-sufficiency in manpower. This requires a strong emphasis on training which is detailed.

II. Cultural and Historical Data

A. Cultural History

The Marshallese have had a long history of contact with foreigners of several nations. Each has left its imprint on the culture of the islanders.

After Magellan discovered this part of the world in 1520, Spain slowly advanced her military, political, economic and religious control in the Pacific. But not until the 19th century were the Marshalls made a part of her vast imperial holdings in any formal sense. Spain's control was so weak, however, that an aggressive Germany had seized control of the Marshalls late in the century.

German administration encouraged the development of trade and established copra production as an economic base for the Marshalls. Although a limited public works program was commenced, the impact on Marshallese culture was not a profound one. One important cultural change brought about by the Germans, however, was the cessation of the interisland warfare between chiefs seeking hegemony over the territories of their rivals.

Japan seized control of the Marshall Islands in 1914 and in 1922 established a civil government under a mandate of the League of Nations. Under firm Japanese control the economy prospered for the first time. Thus, older citizens still remember the Japanese with some fondness because jobs were abundant and education, modern agriculture, improved fishing techniques, and modern communications systems were introduced.

In 1947 the United States accepted a United Nations trusteeship for what came to be termed the Trust Territories of the Pacific Islands. This comprised all the former Japanese mandated islands, including the Marshalls, which had been reconquered by American forces during World War II.

Whalers, explorers, missionaries, and government officials -- all played a part in bringing about changes in Marshallese cultural practices. Cultural changes effected by the Germans, Japanese, and the Americans are evident today in all the islands of the archipelago. European clothing, Japanese cars, "American" food, constitute the most obvious evidences of the changed way of life of the Marshallese people. 'Kajin Majol', the Marshallese Language, is alive and well, and is adapting itself to the demands of a rapidly changing world. The old Marshallese religious beliefs and practices are no longer in evidence nor easy to discover, but some of the old values still express themselves through the social organization and the death rituals.

Although a Western governmental model has been set up for the Marshall Islands, the old stratified model of governance still exists, exerting a very real influence on decisions affecting the new nation. In establishing any comprehensive health plan for the Marshalls this duality of influence and decision must be taken into consideration, with proper provision made for the positive influence of the traditional leadership group.

It would be difficult to over-emphasize the importance of being sensitive to Marshallese culture in the planning of any health care system for the islands. Care in this respect at least equal to that expressed in Article 16, Section C of the health contract between the Government of the Marshall Islands and the Seventh-day Adventist Guam-Micronesia Mission should be expected:

> "The Contractor hereby agrees to take Marshallese custom and tradition into account in its administration of the health services system and to respect the same. . .
>
> "On question of custom and tradition the Contractor, as the party responsible for management and control of the health services system, shall have the same right as any department or agency of the Government to seek advice of the Traditional Rights Court of the Marshall Islands on questions of custom and tradition."

As the Chief Secretary of the Government of the Marshall Islands recently said:

> "The Western world does not always understand us and our culture. They may mean well, but they are often unsuccessful because,. . . in the past they have been planning <u>for</u> people instead of planning <u>with</u> people."

B. Government Policies and Perceptions

The perceptions and policies of the Marshallese Government are colored by the traditional social structure. Each person has duties to his extended family and to his chiefs. The Iroij, or chiefs, have duties to their followers. This responsibility applied to health care has been formalized in the constitution as a right of the individual to health care provided by the government. The implementation of this governmental duty is through the U.S. model of medical science-based technology and practice, modifed to meet local geographic and sociologic conditions. The individual's duty is symbolized by a nominal fee at the time care is required.

The need for both expatriate and national staff is accepted now and in the foreseeable future, but appropriate educational programs will lessen dependence on outside personnel. Stated priority areas include upgrading secondary care facilities and addition of some tertiary care functions, strengthening managerial and fiscal controls, improving communication and transport capability between clinics on out-islands and central secondary care facilities, and recruiting and upgrading staff. Quality assurance activities including initial qualification and continuing education of staff, preventive maintenance of equipment, and the monitoring of process and outcome of care need marked expansion. Specific emphasis needs to be continued in such areas as patient and community health education, alcoholism, hypertension, immunization, diabetes, and dental services. Care of radiation-related illness, although still of major emotional and political importance, is reaching a level that should be integrated into the health care system of the country.

Tensions among Marshallese perceptions exist with regard to family planning, extent of external referrals, degree of support for terminally ill and elective care, qualification and level of health care providers for the smaller or more isolated population groups, and siting and number of health care facilities. The Marshallese view the financing of health care as coming from Marshall Islands Government general revenue, United States Government obligation as Trust Territory administrator and as a consequence of health effects of the U.S. nuclear weapons testing programs, private corporation contribution for the health care of its employees, special program and project grants from foreign governments, foundations and other agencies, and to a limited degree from patient revenue. Although there may be a role for private practice, the government intends that through its health care facilities no one needing health care will be denied access to it.

The final overriding concern is related to the phasing out of the Trust Territory of the Pacific Islands and the assumption of the status of a Freely Associated State by the Marshallese Government. This will impinge on the health care system in a number of ways, such as manpower training relationships, licensure standards, health planning and evaluation activities, supply procurement, etc. It is expected that new expertise will need to be developed in a number of critical areas, and that the full impact of this changed relationship will probably not be known until it occurs.

IV. Organizational Issues

A. Organizational Chart

The present structure of the Marshall Islands health care system is typical down to the level of Secretary of Health. Below that level there are several views as to what exists. This problem has been magnified by the recent contract with the Guam/Micronesia Mission of the Seventh-day Adventist Church. The best concensus appears to be that the Guam Mission has contracted to administer the two hospitals, and traditionally all health care activity is under the direction of the hospitals. (See following section IV. B. and the contract in appendix F for additional information).

Another factor which complicates the administration and delivery of health care is that other departments outside the Ministry of Health are responsible for providing support services to the hospitals and clinics. For example, the Department of Public Works is responsible for providing ground, equipment, and facility maintenance. When Public Works doesn't have the time or money, things do not get done regardless of need and impact on the delivery of health care. The proposed organizational structure anticipates all support services to be budgeted items and under the control of the health delivery system.

In designing the proposed organizational structure, the following items were of concern:

1. Effective and accessible health care
2. Interests of the two governments
3. A functional health care organization

The organizational chart which follows reflects an organization that deals with these concerns. To facilitate an understanding of the proposed structure, a short description of the function/responsibilities for certain areas will be provided.

Financial Intermediary/Program Implementator (FIPI): It is envisioned that this will be an entity mutually agreed to by the U.S. and the Marshall Islands. This would be a university, a private firm, or some appropriate agency. Its primary function would be to provide fiscal integrity and implement the approved program. Under this proposed organization, the Guam/Micronesia Mission would not be the FIPI. We are recommending that their participation in the health care delivery system focus on the management of the two hospitals (division of secondary and tertiary care).

This will require a modification of their present contract. This change will take advantage of their experience and skills in managing other health care facilities in the Pacific area. This change should be coordinated with the implementation of the 96-205 program.

Financial Controller: This would be someone responsible on site for the financial portion of the program. They would be employed by the FIPI and would be one of the two required signatures for fund disbursement.

Health Commission: This would be the coordinating body that would establish priorities, set policy, and develop budgets. Its members would be the Minister of Health or his designee, the Minister of Finance or his designee, the general Secretary or his designee, the Financial Controller, and one other from the FIPI. They would also be responsible for hiring and firing of the five division heads. The five division heads will be available for technical expertise and to present division needs. One of the Marshallese will be designated as the other signature required for the release of funds. The Financial Controller would function as the treasurer for this Commission.

Bank: Both the U.S. and the Marshall Island Government would be required to deposit appropriated funds on a timely basis to a mutually agreed to bank. Funds would be disbursed to the operating divisions by having both the financial controller and designated Marshallese approve the fund transfer. One acting alone could not transfer any funds - U.S. or Marshall Islands. This activity is represented by the Proposed Funds Flow chart that follows.

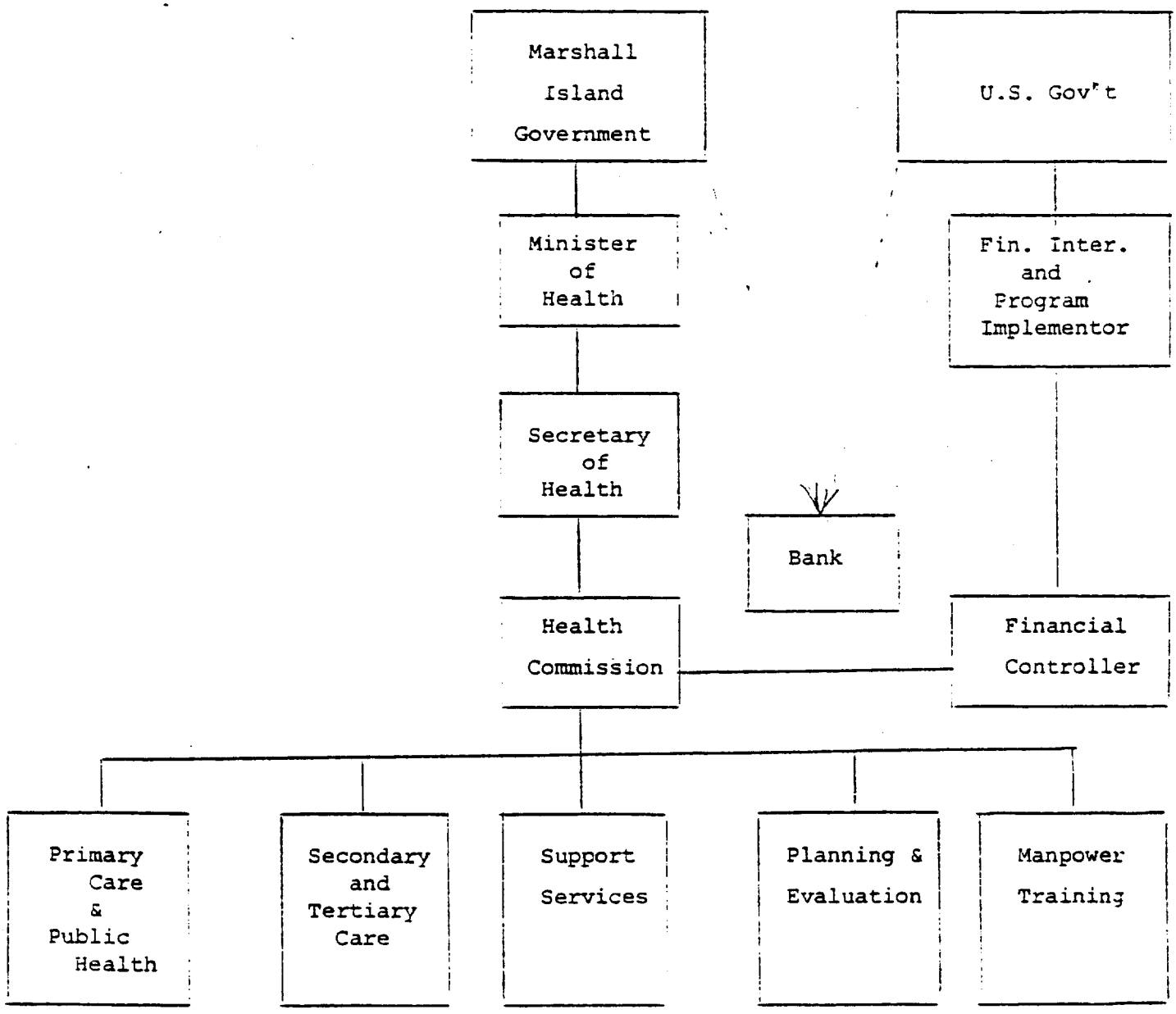
For discussion of the specific activities of each division, please refer to the appropriate portion of the report.

B. Adventist Health Services/Guam-Micronesia Mission Management Contract

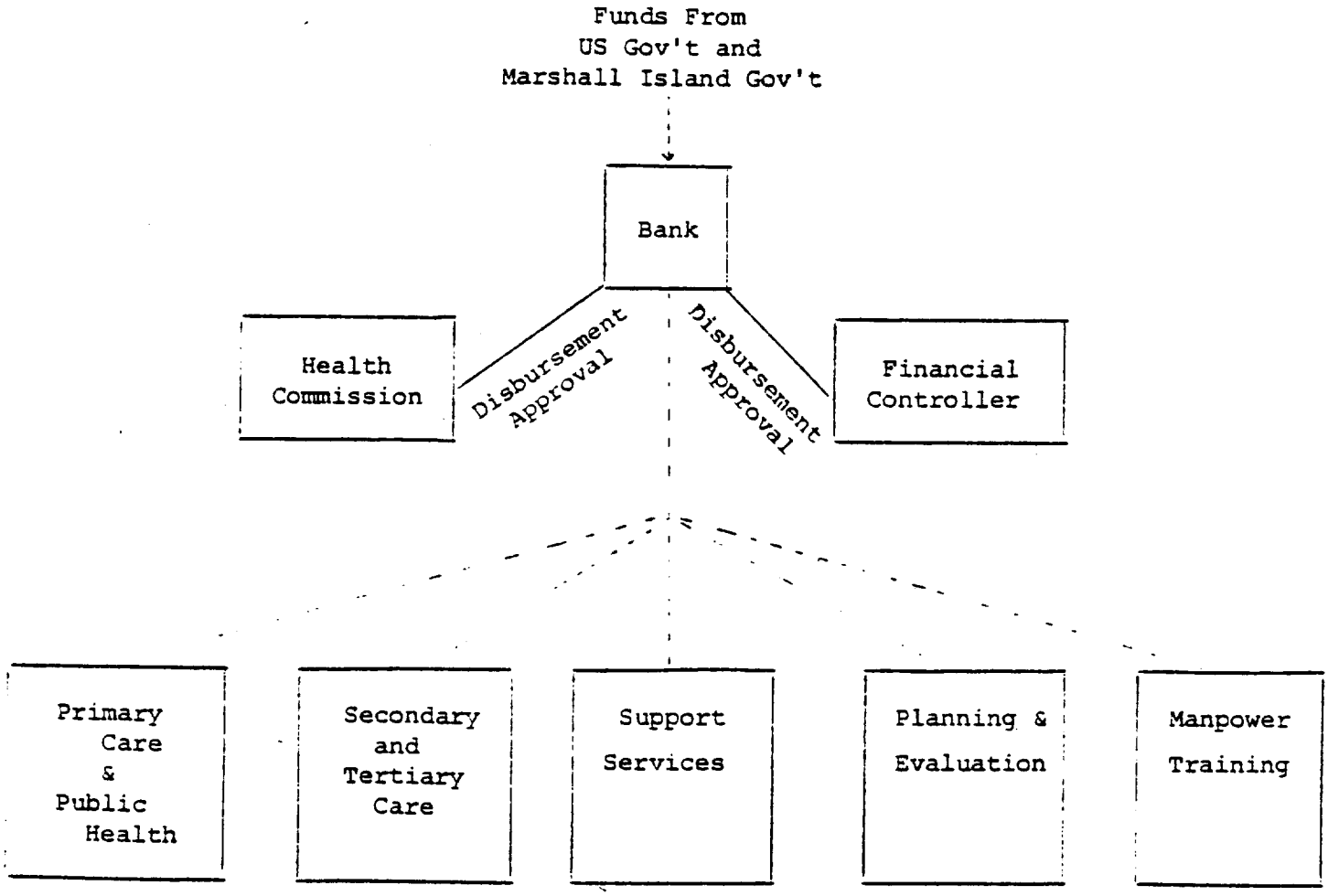
The Marshall Islands Government and the Guam-Micronesia Mission of Seventh-day Adventists signed a management contract in February 1980. Under this contract, the Guam-Micronesia Mission is to provide "management and control of those activities and services presently administered by the Ministry of Health Services of the Marshall Islands." The effective date of the contract is the first Sunday after all of the following have been accomplished:

MARSHALL ISLANDS HEALTH CARE

PROPOSED ORGANIZATIONAL CHART



PROPOSED FUNDS FLOW



1. Certificate of Need issued to contractor; and
2. Health Services Administrator assumed responsibility and commenced full-time management of the health care system; and
3. Completion of those "steps agreed to by the parties" in a Transition Memorandum.

While the documents in 1 and 3 were not available, the transition appears to be in effect as the Health Services Administrator, Fred Schlehuber did assume responsibility October 1, 1980. A copy of the agreement is provided in Appendix F.

The initial contract term is until September 30, 1982 with provision for successive five year renewals. The contract is ambiguous in certain areas and will present problems in administering an effective and efficient health care delivery system. There already appear to be differences between the contractor and certain government officials with regard to the degree of control/responsibility the contractor has in the delivery of health care.

As discussed previously, this may be a moot issue if the proposed organizational structure is adopted as the contract in its present form would not be compatible and would have to be amended.

C. Finances

For FY 1981, the proposed budget for the Department of Health Services is $3,035,500. A copy of the preliminary draft is provided below. The Marshall Islands government is showing DOI is the funding source for $1,920,000 of this total. While budgeting is done on a national and departmental basis, once approved, the funding method appears to be in the "recovery pot" approach. It is at the operational level that budgeting presently breaks down. Spending is done with little regard to line item budget and is a function of who gets to the "money pot" first and how long funds are available. It is understood they ran out of money after 10 months in FY 1980.

Related to the problems presented by this approach is the apparent lack of accounting and finanical reporting at the operational level. Reports are sent to Trust Territory and summary financial information is available. It does not apear, however, to be tied into the budget at the operational level. There is little, if any, accounting for receivables and payables. (For example, there is $334,000 payable for referrals that the hospital

DEPARTMENT OF HEALTH SERVICES BUDGET - DRAFT FY 1981

PROGRAM	PERSONNEL	ALL OTHER	TOTAL
Hospital (Majuro)	1,140,600	64,800	1,205,400
Referral		600,000	600,000
Environmental Health	21,400	4,100	25,500
Dental Services	119,100	4,000	123,100
Supplies		342,100	342,100
	1,281,100	1,015,000	2,296,100
Hospital (Ebeye)	238,500	46,500	330,000
Medical Referral		250,000	250,000
Dental Services	57,800	1,600	59,400
Supplies		100,000	100,000
Sub-Total	341,300	398,100	793,400
TOTAL FOR MAJURO/EBEYE	1,622,400	1,413,100	3,035,500

administrator did not know about.) There are no "management reports" dealing with the relationships between costs and services provided to assist in the effective administration of the health delivery systems. While much of the information is "known", there is no system for recording, accumulating, analyzing, and presenting the information for effective management. This must be a high priority item in the implementation of the health care program under 96-205. For details with respect to the financial considerations for the proposed health plan, refer to the budget sections.

D. Five-year Plan/Trust Territory Relationship

Until recently most decision-making over finances, manpower, health planning, etc. for the various health districts in TTPI were directly under the control of the Director of the Bureau of Health Services, Office of the High Commissioner, TTPI Saipan. With the decision of the Marshalls to go to a Freely Associated State path (separate from Federated States of Micronesia or Guam) a period of uncertain transition has set in.

In the area of health planning, all the districts until recently came under the jurisdiction of the TT State Health Planning and Development Agency. Like all Health Service Agencies in the U.S., on which this agency is modeled, the development of a five-year health plan and annual implementation plan is to be drafted and submitted to a consumer-provider board, here called the Micronesian Health Coordinating Council.

On March 29, 1980 the Five-Year Plan covering 1981-1986 was approved by this Council and submitted to the Regional Health Administrator, Public Health Services, Health and Human Services, Region IX, San Francisco. The plan is presently being deliberated by the Nitijela (Marshallese Congress) and is to be approved before funds under the control of various Federal programs can be released.

Actual implementation of the plan as drafted is somewhat tenuous because within a year (August 1981) the Marshalls will probably no longer be under the State Health Planning Agency's jurisdiction. The Marshall Islands Government (MIG) may yet opt as part of the current U.S. - MIG negotiations to remain within it. But the latter is unlikely, particularly since the MIG has in essence expressed its desire to turn over all health service activities to the Seventh-day Adventist Church on a contractual basis. Thus, the most likely result is that the Marshallese Health Services will need to very quickly set up their own independent health

planning/statistical unit.

As to the handling of Federal categorical grants i.e. Cervical Cancer Screening, Meals-on-Wheels, etc., this is even more unsure. The outcome depends on negotiations between the U.S. and the MIG. It seems to be the desire of the Marshallese to still be eligible for some of the categorical grants, but they don't want the funds to be tied to a lengthy Health Systems Agency certificate-of-need process. It would seem more efficient and politically palatable to the Marshallese if funds were allocated "globally" in block grants (directly from government to government) to cover all agreed-upon health service needs. Administration and accounting of the funds would be done by the Ministry of Health or its contractor directly with the funding federal agency, without an intermediary "outside" Health Planning agency dictating requirements.

Continuing relationships with TTPI for manpower training, consultation on specialized medical problems, special grants, etc., would probably be continued but preferably on a low-key "voluntary" basis. A function which is as yet unclarified is the whole licensing/credentialing process of both institutions (hospitals, lab, etc.) and manpower (nurses, physicians, technicians). Some officials in the MIG would like to assume that role themselves, while others would like to keep this process tied to the U.S. systems. The outcome of this decision could determine a lot on how closely the MIG will be tied to TTPI Bureau of Health Services and all the federal categorial grants they control.

E. Categorical U.S. Funded Programs

The present Ministry of Health Services has a Public Health Division (under the hospital administrator) which performs most health promotion and prevention services. It includes among others: environmental health, maternal and child health, health education, crippled children's services, special clinics (i.e. diabetes, leprosy, hypertension), immunizations, continuing education for health assistants, etc. All of these administered by the Majuro Hospital and funded partially by the MIG and partially by U.S. categorical grants. Many other health related services are administered by other ministries of the government. This unfortunately has caused considerable inefficiency and duplication of effort, not to mention fiscal accounting problems.

For example, the Ministry of Public Works builds and maintains the wastewater and drinking water systems, but the Ministry of Health Services tests the water for potability. Very little coordination between the two is apparent. The Public Health Division is responsible for nutrition education through the section of Health Education. Nevertheless, nutrition education is also covered by the School Lunch Program run under the Ministry of Education and additional nutrition work is done by the the agriculture department as well. Further uncoordination is seen in the area of mental health and susbstance abuse (alcoholism, drug abuse, suicide, etc.). These services are generally provided by separate entities in the Ministry of Social Services as well as that which is provided by the Ministry of Health Services.

In summary, health promotion and protection services, and health prevention and detection services are scattered throughout the government. Their location in the government structure reflects the disparate sources of federal grants-in-aid which started them. As a result considerable duplication of services and inefficiency is common.

Recommendations

It is not the purpose of this report to recommend changes in the whole MIG structure. What is needed though, is that the Ministry of Health Services not add to the problem by being uncoordinated within its own organization.

Thus, it is recommended that all Federal categorical grant programs i.e. crippled children's, meals-on-wheels, hypertension, as well as the more traditional "public health" programs i.e. immunizations, communicable disease control, maternal and child health, be put under one Division of Primary Care/Public Health Services (see Org. Chart). Besides the above mentioned public health activities, this division will manage the entire primary care (dispenary) system on the outer islands (see section VI-B).

Health Status

A. Vital Events

1. Data Problems

As is the case with most developing countries, adequately measuring in a quantifiable manner the health status of the population is very difficult. It is even more difficult here in that the entire country has only 30,000 ± people thus the total number of vital events occurring in one year are few. Therefore any errors in reporting, data handling, or interpretation cause considerably more change in the rates and percentages than in larger populations. For example, the missing of one or two atolls by a "field ship" doing immunizations (or collecting statistics) can mean that an entire cohort of children can be missed thus dramatically affecting immunization levels, not to mention birth and death statistics.

In the economic sector small changes can cause even greater population data changes. It has been said for instance, that the "laying off" of one Marshallese employee on the Kwajalein Missile Range causes twenty plus individuals to leave Ebeye (the adjacent Marshallese town) for their outer island home atolls. Rapid changes in migration, age/sex composition, geographical distribution, and total population per atoll occur frequently as a result of minor governmental changes in hiring practices and policies (55-65% of the workforce in Ebeye or Majuro are employed by the government, furthermore it is estimated that 50-60% of the available workforce in these centers are not employed).

Consequently, any quantitative presentation of the situation must be viewed with caution. Nevertheless the data that is available does provide an estimate of the current status. Most of the data comes from either the 1973 census (the 1980 official census data will not be available until mid-1981) or an unofficial census in 1977, done by the Department of Planning and Resource Development. The continuing registration system which monitors vital events (births, death, fetal deaths) and health service utilization statistics also provide data.

2. Demography/Vital Events

The total population in 1977 was estimated at 25,457 Table 1 shows the projected population by age categories for 1979, 1981, 1985, 1990, and the year 2000.

TABLE 1

PROJECTION TO YEAR 2000 (MARSHALL ISLANDS)

	1979	1981	1985	1990	2000
TOTAL	28,720	30,710	35,580	42,510	60,330
0 - 14	13,270	13,990	15,960	19,140	27,740
15-64	14,290	15,466	18,190	21,770	30,830
65-over	1,160	1,260	1,430	1,600	1,760

(Source: TTPI Five Year Comprehensive Health Plan, April 1, 1980)

According to the M.I. Five Year Health Plan, between 1967-1973 the Marshall Islands grew at an estimated annual growth rate of 4.4%. For that period this was the highest growth in all of the Trust Territory (the birth rate for 1970-1975 was estimated at 42.32 per 1000 population as compared to a 34.52 average for the whole TTPI). Growth rates for the post-1975 period are difficult to determine since the 1977 unofficial census has questionable accuracy, yet it seems to have fallen down in the Marshall Islands to around a 3.5% annual growth rate (still high by any standards).

A more precise picture of the population distribution can be gleaned from an analysis of Table 2 which shows the age/sex composition of the population as of 1973 (the last time this information was assessed).

TABLE 2

POPULATION OF MARSHALL ISLANDS BY AGE AND SEX (1973)
All Persons/Percentages

Age Group	Total	Male	Female
0-4	19.3	19.6	18.8
5 - 9	15.9	16.0	15.8
10 - 14	12.5	12.2	12.9
15 - 19	11.3	11.0	11.7
20 - 24	8.5	8.7	8.3
25 - 29	6.4	6.3	6.6
30 - 34	4.2	4.6	3.9
35 - 39	3.7	3.7	3.7
40 - 44	3.4	3.6	3.1
45 - 49	3.1	3.0	3.2
50 - 54	3.0	2.9	3.0
55 - 59	2.6	2.7	2.6
60 - 64	2.1	2.1	2.1
65 - 69	1.4	1.3	1.6
70 - 74	1.0	0.9	1.2
75 & over	1.5	1.4	1.6

(Source: TTPI Five Year Comprehensive Health Plan, April 1, 1980)

The key data items to note are: a) 47.7% of the total population are under 15 years of age (59% under 20 years of age), b) only 8.6% of the population are over 55 years of age, and c) 74.1% of all females are under 30 years of age.

These data show that the main target groups for health care are pregnant women, children, and young people. The biological potential (fecundity) of this young population is also highly apparent. Though it would seem that health care problems of the elderly would be minor, it is not quite the case here as in many developing countries because of the much higher than normal incidences of specific chronic diseases i.e. diabetes and hypertension (discussed later).

Other key vital statistics for the Marshall Islands in 1976 are summarized below (Source: TTPI Five Year Comprehensive Health Plan, April 1, 1980)

Crude birth rate = 31.1
Crude death rate = 4.2
Infant mortality rate = 17.9*
Maternal mortality rate = 27.0 (1974-1976)
R. Natural Increase = 26.9

*Infant mortality would probably be in the upper 20's to low 30's if there were better reporting. Also a child is historically considered a live birth only after his first birthday.

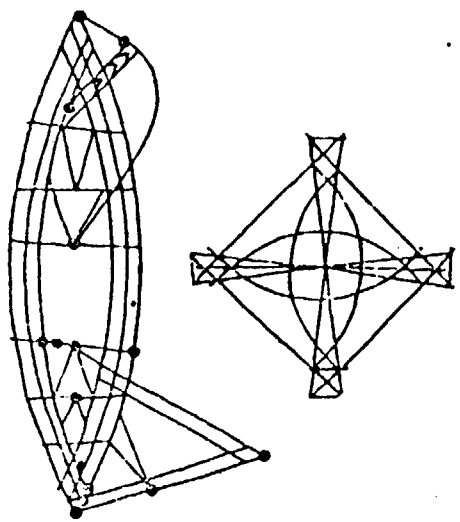
In general the Marshall Islands do not compare badly with many developing countries in "infant mortality" yet it still is significant. The "rate of natural increase" is quite high though. The implications for family planning are obvious. Unfortunately the level of family planning services delivered has been low. Perception of need for family planning services among males is low to non-existent, though women's perceptions differ considerably. The need for better integration of family planning into ongoing maternal and child health services needs to be done, as well as the development of a concerted culturally sensitive educational campaign.

The geographical distribution of the population is also a key demographic factor to consider in health care delivery. (See Table 3) In 1977 it was estimated that 57% of the total population resided either in the "district center" (Majuro - 10,087 or 39%) or in the "subdistrict center" (Ebeye - 18% or 4,577). Arno atoll classifies as an "intermediate zone", and had 1,199 inhabitants or 5% of the population (it lies just 35 miles by water from Majuro); while the remainder of the atolls or "outer islands" contained 38% of the population or a total of 9,594. The map on the next page gives the last known totals of inhabitants by atoll as well as water distances from Majuro.

Marshall Islands District

TRUST TERRITORY OF THE PACIFIC ISLANDS

TOTAL POPULATION.....25,044



ENIWETOK ATOLL
600 mi. to Dist. Center by Water

BIKINI ATOLL POPULATION 75
480 mi. to Dist. Center by Water

AILINGINAE ATOLL

RONGERIK ATOLL

RONGELAP ATOLL
POPULATION 165
410 mi. to Dist Center by Water

BIKAR ATOLL

UTIRIK ATOLL
POPULATION 237

TAKA ATOLL

AILUK ATOLL
POPULATION 335
230 mi. to Dist Center by Water

MEJIT I.
POPULATION 271
202 mi. to Dist Center by Water

WOTHO ATOLL
360 mi. to Dist. Center by Water
POPULATION 61

LIKIEP ATOLL
POPULATION 406
220 mi. to Dist Center by Water

JEMO I.

UJELANG ATOLL
POPULATION 342
687 mi. to Dist Center by Water

WOTJE ATOLL
POPULATION 425
213 mi. to Dist Center by Water

UJAE ATOLL
POPULATION 209
360 mi. to Dist Center by Water

KWAJALEIN ATOLL
270 mi. to Dist. Center by Water
EBEYE
POPULATION 5,324

LAE ATOLL
POPULATION 354

ERIKUB ATOLL

MALOELAP ATOLL
POPULATION 432
105 mi. to Dist Center by Water

AUR ATOLL
POPULATION 300
75 mi. to Dist Center by Water

LIB I.
POPULATION 88

NAMU ATOLL
POPULATION 493 167
180 mi. to Dist Center by Water

JABWOT I.
POPULATION 70

AILINGLAPALAP ATOLL
POPULATION 1,100
148 mi. to Dist Center by Water

Laura
POPULATION 2,287
35 mi. to Dist Center by Rubo
30 mi. to Dist Center by Water

Dist Center

MAJURO ATOLL
POPULATION 8,003

ARNO ATOLL
POPULATION 3,124
35 mi. to Dist Center by Water

JALUIT ATOLL
POPULATION 925
117 mi. to Dist Center by Water

MILI ATOLL
POPULATION 538
90 mi. to Dist Center by Water

KNOX ATOLL

NAMORIK ATOLL
POPULATION 431
224 mi. to Dist Center by Water

KILI I.
POPULATION 360
159 mi. to Dist Center by Water

EBON ATOLL
POPULATION 739
229 mi. to Dist Center by Water

N

NOTES:

TRANSPORTATION TO OUTLYING VILLAGES IS BY WATER.

WATER DISTANCES ARE SCALED FROM EXISTING DOCK IN THE RESPECTIVE MUNICIPALITY.

60 30 15 0 100 200 300
Statute Miles

NOTE:
GEOGRAPHIC CENTERS OF ISLANDS AND LAGOONS ARE PLOTTED TO THE UNIFORM MAP SCALE
OUTLINE DETAILS OF ISLANDS AND LAGOONS ARE DRAWN TO ONE-HALF THE MAP SCALE

160°E 161° 162° 163° 164° 165° 166° 167° 168° 169° 170° 171° 172°E

12° N 11° 10° 9° 8° 7° 6° 5° 4°

1973 POPULATION BY ENUMERATION DISTRICT *

Municipality	Code	Municipal District	Enumeration District #	1973 Population by Environmental District
Taongi	01	Taongi	1	-
Bikar	02	Bikar	2	-
Utirik	03	Utirik	3	217
Taka	04	Taka	4	
Ailuk	05	Ailuk	5	335
Mejit	06	Mejit	6	271
Likiep	07			
		Jebal	7	105
		Likiep	8	301
		Leglal	9	
Wotje	08			
		Wormej	10	173
		Wotje	11	252
Erikub	09	Erikub	12	-
Maloelap	10			
		Ollot	13	94
		Airik	14	92
		Kaven	15	246
Aur	11			
		Tobal	16	137
		Aur	17	163
Majuro (DUD)	12			
		Darrit (Rita)		
			18	709
			19	837
			20	1,329
			21	748
			22	1,076
			23	364
			24	448
			25	250
			26	158
			27	371
			28	717
		Dalap		
			29	522
			30	117
			31	224
			32	133
Mauro (Laura)	13			
		Long Is.	33	351

Municipality	Code	Municipal District	Enumeration District #	1973 Population by Environmental District
		Long Is.	34	119
		Ajeltak	35	179
		Woja	36	57
		Arrak	37	74
		Laura		
			38	65
			39	292
			40	415
			41	203
			42	88
		Rongrong	43	401
		Small Is. (Aengie)	44	43
Arno	14			
		Bikariot	45	194
		Langar		
			46	-
			47	93
			48	149
			49	
		Ine	50	356
		Arno	51	328
Mili	15			
		Enejet	52	207
		Mili	53	172
		Alu	54	159
Ebon	16			
		Toka	55	345
		Ebon	56	395
Kili	17		57	360
Namorik	18			
		Namorik	58	
			59	431
Jaluit	19			
		Majatto	60	273
		Emidj	61	167
		Jebwor	62	485
		Pinglap	63	-
Ailinglapalap	20			
		Ja (Jin)	64	277
		Ailinglapalap	65	549
		Bigatyelant	66	79
		Wotja	67	195
Jabwot	21	Jabwot	68	70
Namu	22			
		Namu	69	340
		Mae	70	153

Municipality	Code	Municipal District	Enumeration District #	1973 Population by Environmental District
Lib	23	Lib	71	98
Kwajalein	24			
		Roi Namur	72	19
		3rd Dist. (Ennubirr)		
			73	68
			74	75
		Meck	75	-
		Ebeye		
			76	522
			77	620
			78	439
			79	493
			80	312
			81	358
			82	276
			83	325
			84	379
			85	255
			86	445
			87	380
			88	309
			89	10
		Kwajalein	90	3
		Carlson		
			91	11
			92	5
		Carlos	93	93
		Illeginni	94	3
		Ebadon		
			95	41
			96	24
		Boggerik	97	3
Lae	25	Lae	98	154
Ujae	26	Ujae	99	209
Ujelang	27	Ujelang	100	342
Enewetok	28			
		Engebi	101	-
		Parry	102	-
		Enewetok	103	-
Bikini	29			
		Romurikku	104	
		Bikini	105	(75) in 1973
		Enyu	106	
		Enirik	107	nothing
		Namu	108	
Rongerik	30	Rongerik	109	
Rongelap	31	Rongelap	110	105

TABLE 3 (CONT'd)

Municipality	Code	Municipal District	Enumeration District #	1973 Population by Environmental District
Ailinginae	32	Ailinginae	111	-
Wotho	33	Wotho	112	61

The distribution of population presents two diverse problems: 1) a high concentration of the population in the two "centers" with many typical urban health and social problems common to developing countries (crowding, lack of sanitation, unemployment, substance abuse, etc.), and 2) a remote, scattered, and yet quite sizeable portion of the population in rural areas, the outer islands. These people's access to health care is complicated by long water distances between atolls as well as within them, long periods of bad weather, and a scattered settlement pattern. Typically homes are located on each household's weto, or traditionally allocated segment of land which cuts across an island from ocean to lagoon. Families may furthermore have wetos on different islets within an atoll to which they move around to periodically harvest copra. Spatial mobility of the population is thus a severe problem complicating both the planning and delivery of health services.

3. Morbidity and Mortality

Estimates of morbidity and mortality come primarily from hospital discharge and clinic "sick call" data. This is not ideal but it is all that is available. Tables 4 and 5 show the 17 leading causes of death and rank order of selected causes of death (0-4 years of age).

According to the TTPI Five-year Health Plan, the Marshalls lead Micronesia in the notifiable diseases of: meningitis, tuberculosis (all forms), fish poisoning (causes uncertain), rubeola, and shigella. Other serious communicable diseases of children and adults are still a problem, i.e. mumps, polio (which has led to a high need for post-polio paralysis rehabilitative services), a whole range of parasitic diseases, and upper respiratory diseases (i.e. pneumonia and influenza). Malaria and schistosomiasis are not present.

Chronic diseases are also very serious, particularly among the adult population. Many of the Pacific People, such as the Marshallese, have very high rates of diabetes (estimates run up to 40% of the adult population). The adult onset type of diabetes is most common, though its epidemiological characteristics are not well understood in this population. The treatment of insulin-dependent diabetics (requiring insulin) is one of the major tasks of Health Assistants in the Marshalls. The need for adequate "cold storage" of insulin is thus a real need. Health education and other preventive services to reduce the incidence and complications of these diseases are yet to be effectively instituted, particularly in the outer islands.

Hypertension is also very high. Estimates from a few selected screening programs, primarily in district centers, put the incidence around 10 - 15% of the population. Again, like diabetes, both the nature of the disease and its magnitude in this population are not well known. Both research as well as health delivery/education programs are needed on this disease as well. Several additional specific disease areas are dealt with below.

TABLE 4
17 LEADING CAUSES OF DEATH
(MARSHALL ISLANDS 1974-1976)

		Number of Cases
1.	Cancer	33
2.	Cerebral Vascular Diseases	33
3.	Prematurity	25
4.	Heart diseases	24
5.	Gastroenteritis/intestinal diseases	24
6.	Pneumonia	23
7.	Inanition (relating to senility)	21
8.	Diabetes	19
9.	Chronic Lung Conditions	18
10.	Nonmaternal conditions associated with delivery	14
11.	Accidents	12
12.	Suicide	12
13.	Meningitis	11
14.	Chronic Gastro-related conditions	10
15.	Congenital Defects	10
16.	Kidney Diseases	7
17.	Nutritional Deficiencies	7

(Source: TTPI Five Year Comprehensive Health Plan, April 1, 1980)

TABLE 5

RANK ORDER SELECTED CAUSES OF DEATH (0-4) years) 1974-1976

Prematurity	23 or 22.3%
Congenital defect & birth related injuries	20 or 19.4%
Gastroenteritis & amebiasis	18 or 17.5%
Pneumonia	9 or 8.7%
Malnutrition	5 or 4.8%
TOTAL	75 or 72.8%

(Source: TTPI Five Year Comprehensive Health Plan, April 1, 1980)

B. Radiation

Having reviewed the 20-year report on the exposed Marshallese published by Brookhaven National Laboratory in 1975 and the published and unpublished data acquired since 1975 (soon to be published as a 26-year report), the following conclusions are summarized:

1. The people of Enewetak (measured in the spring of 1980) have received less radiation exposure than that allowed for large populations according to the standard published in International Commission on Radiation Protection, 77 publication 26.
2. The people of Bikini who returned to their home island (1969-78) received an annual mean radiation dose equivalent of less than 500 millirems per year (the maximum permissible exposure allowed for non-occupational persons).
3. The people of Rongelap and Utirik have significantly increased thyroid pathology, undoubtedly radiation related, and manifested by hypothyroidism and an increase in both benign and malignant thyroid tumors.
4. There is the possibility of other radiation related diseases in the Rongelap population (e.g. leukemia).
5. Although significant acute skin pathology occurred on the islands of Rongelap and Utirik, no serious delayed skin pathology has been noted to date.
6. There are increased eye problems and diabetes which do not appear to be radiation related.

7. Detailed records of the radiation exposed population and of many control persons are on file at Brookhaven National Laboratory on Long Island.
8. Although Brookhaven National Laboratory has primarily been interested in the occurrence of radiation exposure and resultant effects, it has by necessity provided limited primary through tertiary health care.
9. It appears that all the exposed Marshallese and a significant number of unexposed Marshallese have had considerable alteration and interruption of their life patterns due to the nuclear weapons testing program and subsequent investigation and follow-up.

The migration of radiation exposed persons to other atolls, intermarrying of exposed and non-exposed persons, utilization of potentially contaminated foodstuffs (fish and fruits) by non-exposed individuals from other atolls, non-exposed groups currently living on affected islands, and uncertain exposure coverage, as well as other factors, makes it difficult to identify radiation affected individuals. Additional issues in providing health care for these people are the following:

1. Any reasonable means to help the exposed population to feel no different from the remaining Marshallese is desirable in view of their past unique treatment, fears, and misunderstanding.
2. It is inherently difficult and impractical to distinguish with any precision in any individual case whether a particular illness is radiation related or not.
3. Radiation exposure monitoring is expected to continue.

Based on the stated conclusions and other issues, the following recommendations are made with respect to known radiation exposed Marshallese within a comprehensive Marshall Island health care system:

1. The health records of each person should be available wherever they are receiving primary and secondary care. Routine medical histories and physical examinations should be directed towards specific disease complexes known or suspected to have an increased frequency among radiation exposed individuals (e.g. thyroid nodules).
2. Although some continued radiation effect monitoring is necessary, it appears that the frequency and extent should be tapered with time. This monitoring should be as non-disruptive as possible yet still maintain good follow-up and reasonable acquisition of data.

3. The continuation of environmental monitoring should be proportional to the radiation risk involved and information needed.
4. Once rapport has been established, additional education of the patient and family should be done both formally and informally in order to separate fact from superstititon and misinformation in order that daily life may return to "normal" with regards to the radiation exposure as soon and smoothly as possible. Also a general radiation educational program should be developed that would impact all levels of society.

C. Communicable Diseases

Communicable diseases are present in the Marshall Islands although less prevalent than in many developing nations because of the isolation factors of separate islands and atolls as well as other reasons. Tuberculosis and leprosy are present but not highly prevalent, while malaria and schistosomiasis are not present. Respiratory and influenzal illnesses primarily spread throughout an island after being introduced from outside by the periodic visits of the field ships. With the advent of air travel and more frequent communication with people from other islands, the protective effect of isolation from disease will be reduced. Parasitic infestations are very common and highly communicable. Their prevention has been discussed in the section on environmental health. The sexually transmitted diseases are becoming more of a problem especially in the crowded urban centers. Their prevention, detection and appropriate treatment must be given high priority in the health care plan. Polio is present as evidenced by a number of persons with residual paralysis. This problem along with that of measles, whooping cough, tetanus, diptheria, and tuberculosis can all be prevented or greatly reduced by an effective immunization program.

D. Chronic Diseases

The Marshallese people are currently in the transition from the typical communicable disease/malnutrition complexes of developing countries to the chronic disease complexes of developed countries. In particular, the Micronesian people as a whole seem to be prone to the development of diabetes and hypertension. Both of these diseases impact on the cardiovascular system and are undoubtedly responsible for the relatively high cerebrovascular mortality rate.

Both hypertension and diabetes are multifactorial disease complexes, being dependent on a mixture of heredity, diet, obesity, exercise, etc. The primary factors responsible in the Marshalls have not been ascertained. Even the exact incidence of each disease is unknown. An adequate understanding of the epidemiology of these problems and causative factors in this environment will be an important initial step in developing adequate detection and treatment programs.

E. Social Problems

With traditional folk ways and family relationships undergoing dramatic change over the years, kinship lines and responsibilities have been fragmented for most Marshallese families. The underlying support system for all family members has been disintegrating over time and the youth, as well as the elders, have become disenchanted and alienated. The Marshallese perceive the increasing use of alcohol as one of the most serious problems in the Islands and identify it as the contributing factor in further fragmentation of kinship ties and in other destructive social changes. Arrests for alcoholism (adolescents and adults) have tripled in the past 3 years for adolescents (Wally Wotring, Director of Public Safety) and have already doubled for adults in 1980 (January through September). Drunken behavior has also been involved in the increase of car accidents on Majuro and the alarming upward trend of suicide throughout the Marshall Islands (suicide rates for adolescents are considered by some local respondents to be twice the rate found in the United States).

Other distressing social problems affecting coping abilities and the mental health of the local people include dislocation and redistribution of people, increase in crime rates (especially forgery, burglary and assault and battery), increased prostitution, use of drugs, intrafamily violence, divorce, loss of understanding and communication across generational boundaries, neglect of parenting and parenting skills, lack of family planning and enhancement of family life; increase in juvenile delinquency, homosexual relationships, and lack of employment opportunities for all age groups (adolescence through the aged).

Additional mental health problems are evident in the form of apathy, alienation, depression, stress syndromes, confusion and ambivalence, low motivation drives, self-identity crises, role dysfunction and role identification crises (adolescents and adults), and fear of the future and the unknown (economics, health and basic survival).

F. Dental

Three factors are significant in initiating tooth decay: 1) the resistance of the tooth, primarily related to the amount of flouride incorporated in the tooth surface, 2) the quantity and type of sugar consumed, and 3) bacteria in the mouth. Marshallese children have very low flouride intakes and generally a high sucrose intake producing a significantly increased incidence of tooth decay. In addition, the typical attitude toward a cavity is not to seek help until the pain has become unbearable. Though these factors operate throughout the Marshalls, the high sugar consumption is greater in the urban centers of Majuro and Ebeye.

The DMF-S ratio (a standard measure of dental disease) was calculated as 6.16 among school children on Majuro during 1966-68. This had improved to 3.68 by 1977. The exact reason for this improvement, which reflects Majuro children only, is not known. To date no coordinated evaluation of dental health on the outer islands has been done. Previous attempts at dental public health, through education, flouride mouth workers, and early detection and treatment, have been severely hampered by lack of manpower and finances.

G. Nutritional

The diet of the Marshallese people living in the outer atolls consists mainly of coconut, fish, breadfruit, pandanus and rice. Bananas, papayas, taro and arrowroot make up a smaller part of the diet. The percentage of the diet made up of each food type will vary depending on location and season. Naidu et. al. (1980) reported that coconuts constitute up to 58% of the diet and fish constitute up to 36%. Vegetables are being added to the diet by some people who are exposed to them and like them. School children who get two meals, breakfast and lunch, plus a snack, are being introduced to some of these in order to meet U.S.D.A. recommendations for a balanced meal and this introduction is leading to an acquired taste for more vegetables.

The diet of the people living in the population centers of Majuro and Ebeye is largely imported and consists of purchased rice, canned foods, and flour and sugar, since they have a cash economy and access to a greater variety. People now living on Enewetak Atoll are also eating imported food given to them by U.S.D.A. There are two reasons for this program. First, the islands that are inhabited were nearly completely denuded of vegetation during military operations. After the resultant clean-up and the

reconstruction of the island for habitation, very little food plants were left. In fact, no food plants were left on Enewetak Island and it will be several years before the replanted trees produce. The second reason is to keep the people from eating food grown on the atoll until the degree of risk from plant uptake of radionuclides can be properly evaluated.

The people of Enewetak are provided 6 lbs. of food per person per day according to a menu prepared to U.S.D.A. recommendations. Discussion and observation suggests the people are not eating what the nutritionist recommends, but are selectively eating what they like from what is provided.

The Division of Agriculture in the Ministry of Resources and Development has recently initiated an agriculture experiment station in Laura on Majuro to test varieties and develop techniques for vegetable gardening. They are also beginning to study pig and duck meat production.

Vegetables which have been successfully grown include cucumbers, tomatoes, bell peppers, chili peppers, eggplant, onions, cabbage, chinese cabbage, watermelon, green beans, radishes, and corn. Since most people are not accustomed to eating these, they are not currently incorporated into the average diet.

Some people have made the argument that since most vegetables don't grow well without good soil, and since organic matter to make good soil is not readily available, there is not much point in encouraging people to try to grow vegetables. Others said methods should be used which rely solely on locally available materials i.e. no imported fertilizer etc. If it is considered important to add a greater variety of vegetables locally, then thought must be given to agriculture development. Development of health care requires imported medicines and equipment. Development of transportation requires imported vehicles and fuel. Therefore, it should be accepted that development of agriculture requires imported soil, organic matter, nutrients, seeds, pesticides, tools, and technology.

In conclusion, the people are getting a good supply of food. There are no reports of hunger. Data from the Trust Territory Pacific Island 5 Year Health Plan shows 6 deaths in 1977 related to nutritional deficiencies. Only one hospital discharge in all the TTPI in 1977 was listed as caused by avitaminoses and other nutritional deficiencies. It must be recognized that there is not an adequate record keeping system to correctly determine the actual amount or causes of many illnesses. Nutritional abnormalities may be involved but undetected. Local staples plus rice are readily available and

utilized. Imported canned foods are increasing in popularity. Production of staple foods could be increased with increased motivation and agriculture extension education. New vegetables could be produced with the proper inputs and an increase in the desire of the people for these products. The potential of increasing food imports from the neighboring states of Ponape and Kosrae should be studied rather than the present practice of increasing food imports from the U.S. The latter are more expensive, the foods less culturally desired, and less nutritious. For example sweet potatoes, taro and other more typical South Pacific fruits and vegetables could be imported form Kosrae instead of rice and wheat from the U.S. This practice would also increase intraregional economic relationships and decrease economic dependencies on the U.S.D.A.

VI. Health Services

A. Administration

It is proposed that the administration of Health Services be provided by two divisions - Division of Primary Care/Public Health and the Division of Secondary and Tertiary Care. While these division's services are related, their differences in program development, level of care, and unique administrative needs suggest a more efficient program will result if administered separately.

As discussed earlier, we are suggesting that the Guam/Micronesia Mission's contract be modified on implementation of 96-205 to take advantage of their unique experience and skills in the management of secondary and tertiary care facilities.

The division responsible for primary care and public health should be administered by a public health physician with the appropriate support staff skilled in the areas of primary care and public health.

B. Public Health

The recently drafted Five-Year Health Plan for the TT has put "public health" needs as the number one priority in the Health Plan. It classifies public health programs into two categries (for ease of analysis only). These are: 1) health promotion and protection services, and b) prevention and detection services. The primary focus of the first is the community, while the focus of the second is the individual or family. Obviously there is considerable overlap, yet separation of the two is done purposely to clarify function.

As was pointed out under Section V Health Status, many illnesses and deaths in the M.I. (Particularly those of infants, children and women in childbearing years), could be prevented by use of resources available to almost every family: boiling and/or filtering of water; greater attention to personal hygiene; improved food handling methods; improved waste disposal methods; immunization of children; prenatal care; spacing of births; use of basic first aid procedures; and improved nutrition. These represent just a few of the ways Marshall Island residents could improve their health.

However, before people can effectively use these mechanisms to promote health, they must understand the relationship between health, illness and daily living habits and they must be motivated to make the required changes in lifestyle as expressed in the Five-year Health Plan (pp. 227):

> "Because in many areas . . . education is limited and modern facilities which simplify health promotion and maintenance e.g. garbage disposal facilities, sewage sytems, public water treatment, and distribution systems are not available, it is not always easy for indidivuals to assume responsibility for their own health. It is the purpose of health education to give information to the community and individual families which explains the relationship between personal habits and health/illness and demonstrates accessible and culturally acceptable methods for altering lifestyle in order to enhance health. It is the purpose of environmental health (and other preventive health methods) to design and assist individuals to make use of appropriate facilities and practices in order to implement the knowledge given them by health educators. Likewise, community nutrition programs are designed to demonstrate and assist people to put their knowledge into practice."

Recently the World Health Organization has set as its target that all people of the world would have access to better health care "by the year 2000", and it specified that the method would be through "primary health care." In the Marshall Islands, as in many developing countries, the health worker at the "primary" (usually rural) level must integrate both "curative and preventive/promotive" health care into his practice. This is recommended here as well. By combining the Primary Care (curative) clinical services, and the Public Health (preventive) services under one department this goal will be easier to accomplish.

The existing primary care workers in the M.I. at the dispensary/clinic level are generally under-utilized (most see an average of only 3-5 patients a day). Due to lack of supervision, education, and material support their ability to function as "community/family health" educators has been minimal to non-existent. In many developing countries of the world integration of the "curative" and "preventive" role in one person is being utilized. Two factors make this integrated approach logical in the Marshall Islands - the generally small curative work load and the impossibility of public health personnel being able to visit the outlying islands on any regular schedule.

The following public health components will be approached from this perspective.

1. Health Education

In 1979 a full-time health educator was employed in Majuro for the first time. This reflects the growing recognition that educational efforts must be an integral and strong component of any successful health care system. A health education section should not, however, become the sole provider of education. Their role is rather one of developing materials and ideas and encouraging their utilization by all providers in the health care system. The most effective health education is that given in response to a question - and the clinical staff are those being asked the most questions.

The choice of topics to pursue in educational efforts should be influenced by the prevalence of particular problems and the ease with which they can be improved. Priority topics that have been identified are:

Nutrition-related diseases including malnutrition and obesity, hypertension, diabetes, and various dental diseases.

Diseases related to improper sanitation and personal hygiene including diarrheal diseases, gastroenteritis, filariasis and other worm infestation, amoebic dysentery, hepatitis, and others.

Communicable diseases including 'childhood' diseases preventable through immunization, venereal disease, tuberculosis, leprosy, and others.

Certain diseases and conditions associated with pregnancy and early infancy which are partially or wholly preventable through proper prenatal, postnatal, and infant care.

Oral diseases particularly dental decay occurring in children

Mental health-related problems including alcohol and drug abuse, suicide, and other conditions often associated with social disorganization

Inappropriate use of health care services and facilities by health care consumers and reluctance of health care consumers to assume appropriate responsibility for health and the health care system

To accomplish these objectives, health education responsibilities must be assumed by all health workers, especially the medical assistants (medex) and health assistants providing primary health care.

Recommendations

1. Maintenance of a health education "office" within the Public Health division.
2. Develop educational materials for use by health workers and in the community at large, e.g. through radio.
3. Coordinate workshops and demonstration projects to upgrade the educational skills of primary health care workers e.g. medex and health assistants.
4. Set targets, design plans and monitor changes in knowledge, attitudes and practices within the community.

2. Maternal and Child Health

Maternal and Child Health activities include antenatal, natal and postnatal care, family planning, immunizations, nutrition education, well child care school health and other health care needs of the mother and child. This group is at particular risk, as shown by a relatively high infant mortality rate. As with other public health services, usually only Majuro and Ebeye have organized maternal and child health care available. And even in these centers certain components of care, such as antenatal and postnatal visits, family planning and nutritional advice are poorly utilized.

Most aspects of maternal and child health care can and should be provided through the primary care network. There does not seem to be a major problem in the Marshalls with males providing maternal and child health services except to their own relatives. There are traditional birth attendants (TBA's) who relate to the health personnel and assist in or provide delivery services, but no formal midwifery training has been provided.

Family planning activities are still difficult to discuss culturally but it is expected this resistance will gradually change and family planning will become an important maternal and child health component. Immunization services and school health should continue as important components and will coordinate with the communicable disease section and Ministry of Education respectively.

Recommendations

1. Maintain a maternal and child health section in the Public Health Department for promotion of maternal and child health activities at all levels of health care.
2. Coordinate an immunization system with the communicable disease section that maintains adequate services in all atolls.
3. Implement a family planning/child spacing program in a culturally acceptable manner.
4. Identify and upgrade the skills of the traditional birth attendants who are currently active.
5. Encourage wider use and understanding of prenatal and postnatal clinic visits.
6. Institute the use of a "Road to Health" card system for the under-5 population for better monitoring of growth and record keeping e.g. immunizations (sample included in Appendix K).
7. Encourage legislation that requires complete immunization before school entry is permitted.
8. Strengthen health screening and educational activities in primary and secondary schools.
9. Promote nutrition education in the mother and child population.

3. Communicable Diseases

Services with respect to communicable diseases are rendered in various components of health care. Those diseases spread by improper sanitation and hygiene are discussed under the section of environmental health. Other communicable diseases are discussed in connection with social problems. A number of communicable diseases can be prevented or reduced through an effective immunization program.

A comprehensive immunization program is essential to maintaining a healthy outer island population. In the past, these immunizations were administered by personnel on the field ships. They were delivered at whatever interval such scheduling required, and were only effective in reaching the few children who were within easy reach. In the past year, immunization rates have fallen from 80% to about 19% in the under-2 year olds. To deliver adequate viable protection to the population at large is a very difficult task. This is especially so when the distances are so great, the population widely diversified, and cold chain maintenance so difficult.

Recommendations

1. Majuro and Ebeye both require intensified immunization programs capable of delivering full coverage to 100% of the school children and 90% of the population at large, within a one year period of the programs initiation.
2. Utilization must be made of Air Marshall Islands for the delivery of immunization supplies, and occasionally teams, to the outer islands.
3. All children enrolled in outer island schools must be able to present an up-to-date immunization card showing current full coverage within one year of program implementation. This can be obtained through mobile teams and local health assistants operating from the atoll's main clinic, with cold chain maintenance capacity.
4. Upgrade the supply and logistics system for immunizations, develop a functioning cold chain system, and establish a detailed statistics and record keeping service for surveillance, evaluation, and reporting. The outer island clinic refrigerators and central cold storage facilities at Majuro and Ebeye will be crucial to ongoing programs on the atolls.

4. Chronic Diseases

Unlike many developing countries, the Marshall Islands are developing significant health problems with chronic diseases. Cancer and cardiovascular diseases, the latter representing the end effect of hypertension and diabetes, are the leading killers. While the clinical care of these problems will be covered by primary and secondary facilities, the education and detection is often coordinated by public health personnel.

A federally funded (DHEW) cervical cancer screening program was completed in 1978 with moderate success. After initial reluctance, there seemed to be general acceptance of the program, including male workers doing pap smears. The program was limited primarily to Majuro and Ebeye where coverage ranged from 12-47% in different years and locations. No other cancer screening or education programs have been undertaken to any significant degree.

Hypertension is increasingly being recognized as a significant problem in Micronesia. It appears that from 7-15% of all Micronesians may be affected. The high mortality statistics for cerebrovascular disease are undoubtedly a result of this problem. Adequate evaluation and treatment of hypertension has not been a strong component of the health assistant curriculum, so the existing primary care workers appear to be doing a rather

poor job of managing hypertension. Inservice education for health workers as well as community education and screening programs would appear to be high priority items.

The final chronic disease of increasing significance is diabetes. Though incidence figures are difficult to ascertain, anecdotal reports show it to be of real concern among both the health workers and the community. "Insulin clinics" operate on both Ebeye and Majuro where diabetics come daily for their injections. These also operate intermittently on some of the outer islands, but evidently all of these clinics are periodically closed because of insufficient supplies of one kind or another. Fortunately, most patients must not be ketogenic, as they tolerate this intermittent schedule surprisingly well. The impact on the development of insulin allergy/resistance must be considerable and a more rational approach to diabetic care must be developed. Oral agents, e.g. Diabenese, are widely used for obvious reasons, and education regarding proper dietary patterns and urine checking are not adequately promoted.

Recommendations

1. Develop cancer, hypertension and diabetes educational materials within the health education unit and promote these among both health workers and the general population.
2. Develop specific screening protocols for selected cancers, hypertension and diabetes that will be taught to the medex (medical assistants) and health assistants through inservice education and then be integrated into the primary health care system.
3. Identify a referral system for persons with selected types of cancer and communicate this to be primary care workers.
4. Develop treatment protocols for hypertension and diabetes, along with appropriate equipment and supplies, for the outer island clinics.
5. Start a research project to adequately ascertain the true relevance of the disease and its etiology (which seems to differ here from other high diabetes populations). A cost estimate for such an epidemiological study is included in Appendix L.

5. Environmental Health

Parasitic and infectious diseases are among the most serious health problems in the Marshall Islands. Gastroenteritis, amebiasis, other dysenteries, parasitic infestation, and other gastro-intestinal disorders, when classified as a unit, are one of the leading causes of morbidity and mortality. While there is not enough data to directly attribute all the above conditions to poor environmental sanitation, it is reasonable to assume that improvements in environmental sanitation would have an impact on improving the health status of the people of the Marshall Islands.

Due to the importance of environmental health in preventive medicine the Environmental Health Division operates as an independent division of the Department of Health Services. The Environmental Health Division is charged with general sanitation and public health responsibilities and also has served as an arm of the U.S. Environmental Protection Agency to enforce regulations which are related to pollution control.

The major responsibilities of the Environmental Health Division are:

- Monitoring of public drinking water quality
- Monitoring of sewage disposal practices
- Monitoring of solid waste disposal
- Monitoring of lagoon water quality
- Issuance of dredging permits
- Enforcement of regulations regarding oil spillage and other harbor pollutants
- Ship inspection
- Village inspections
- School and other public facility inspections (camps, theatres, prisons, etc.)
- Issuance of building permits (for water supply and waste water only)
- Inspection of restaurants, bars, bakeries, grocery stores, and the fish market
- Rodent and insect control
- Advice to citizens regarding private water supplies, sewage and solid waste disposal, personal and home hygiene, etc.
- Public environmental health education

All the above responsibilities of the Environmental Health Division are governed by Trust Territory laws, rules, regulations and codes which were developed and administered by the Trust Territory Environmental Protection

Board (EPB). In addition to administration and promulgation of laws and rules the EPB can accept appropriations and grants from the U.S. Government or other agencies, public or private; establish criteria for classifying water, air and land in accordance with present and future uses; establish and provide for a permit system for the discharge of any pollutant to water, air or land; and collect information and establish record keeping, monitoring and reporting as necessary to properly administer a program of environmental health and pollution control.

Observations and Recommendations

With the emergence of the new status of a Freely Associated State and the dissolution of the Trust Territory, serious consideration must be given to the development of appropriate laws, rules, regulations and/or codes governing the activities and responsibilities of the Environmental Health Division in the Health Department of the Marshall Islands. Also the various EPB functions will have to be assumed by local staff in addition to their continuing programs in environmental health. The assumption of the additional responsibilities will result in a need for additional skilled manpower. Trust Territory of Pacific Islands staff should work with the local staff to provide training and guidance during this critical transfer period.

The problems of water supply and sanitary disposal of human waste has been well studied, analyzed and reported on, especially in the more urbanized centers of Majuro and Ebeye. No attempt will be made in this plan to review all these problems. Most of the published reports are referenced in Appendix N. Some of the proposed plans to deal with the water supply and wastewater disposal problems are being implemented or will be implemented in the form of large public works type projects for building, repairing and/or upgrading the public water supply systems and wastewater disposal systems of Majuro and Ebeye. These projects are or may be funded under grants from the U.S. Environmental Protection Agency or other U.S. Government Agencies.

One problem with these large public works projects in the past and at the present time is the lack of local trained personnel to take over the administration, operations and management including preventive maintenance programs for these projects after they are completed. Also local government funding for operations and management is usually not sufficient to maintain the system, even if well qualified personnel were available. It is recommended that

for any major public works development for public water supply and wastewater disposal, funding be included for some expatriate management of the system after completion. Funding for training of local personnel, both formally and on the job, to take on the responsibility of management and operation of the system should also be included.

Table 6 presents a summary of the adequacy of the water supply, sanitary disposal of human waste, solid waste disposal and vector (rats, flies, and mosquitoes) control problems in the 20 islands surveyed as a part of developing this health plan. This represents about 82% of the total population of the Marshall Islands served by the facilities which were evaluated in this survey.

The adequacy of fresh water supplies in all the outer atolls was mainly based on approximate sizes and numbers of rainfall catchments and cisterns or tanks related to the number of people served and the rainfall amount, except for Enewetak where the sizes were measured and numbers determined. A water consumption of 20 gallons per person per day was used for the Marshall Islands. This value is low because water is usually not used for flushing toilets, watering lawns or running washing machines etc. and there is partial substitution of drinking water by the use of coconuts and bottled and canned beverages. In spite of low water usage, during low rainfall months water shortages often occur, especially if there are no reserve or emergency storage tanks or cisterns on the island.

No sanitary surveys of potable drinking water have been done on the outer atolls. Poor sanitary quality on these islands was assessed by observation and by questioning the health assistant and/or magistrate.

Only 4 of the 20 islands surveyed had adequate reserve or emergency storage capacity while at least 7 were inadequate to meet present needs, at least not at 20 gallons per person per day. Ebeye's water usage has been only around 10 gallons per person per day over the last 2 years and they still have to buy water from Kwajalein Missile Range almost every month. When the new airport catchment in Majuro is completed along with the new expanded reservoir about 20 million gallons per month can be caught and stored which is more than adequate for the present population. But in order to adequately deliver that water (in quantity and quality) the distribution system will have to be repaired and replaced (possible funding from Community Improvement Grants appropriated by the U.S. Congress, U.S. Housing and Urban Development Grants, etc.).

The sanitary quality of the potable water systems in Majuro and Ebeye is questionable. The free residual chlorine level should be tested daily and the total coliform bacteriological test 2 or 3 times weekly. This increased

TABLE 6

A summary of the Environmental Health Survey conducted in the Marshall Islands during October and November 1980. All of the Atolls and Islands listed were on-site surveyed except for Kili which was by informant on the radio. Numbers or symbols in ( ) are uncertain or variable. A plus (+) symbol indicates that a parameter is adequate and a minus (-) inadequate.

Atolls and Islands Sampled	Estimated Population	No. per dwelling unit	Water Supply ++ adequate with reserve storage 0 poor sanitary condition	Toilet Facilities ++ adequate with water seal	Solid Waste Disposal	Vector Problems R - rats F - flies M - mosquitoes
Utirik - Utirik	380		-	-	-	R, F, M
Mejit	267	7.2	+	+	+ to -	R
Likiep - Likiep	200	5.7	++	+	+ to -	R
Wotje - Wotje	310	8.6	++ , 0	+	-	R, F, M
Maloelap - Tarawa	60	6	+	-	-	R, F, M
Majuro - D.U.D.	10,000 +	11	++ to -, (0)	-	-	R, F, M
- Laura	2,500	9.6	-	+ to -	+	R
Arno - Arno	265	7.8	+	-	+ to -	R, F, M
- Illien	100 +	(5)	(-)	-	+	
Mili - Mili	180 +	8	-, 0	-	-	R, F, M
- Takewa	73	8	-, 0	-	+ to -	R, F, M
Kili	500 +	5	+	++	-	R, F
Jaluit - Jaluit	400 +(perm)*	7	+	-	-	R, F, M
- Emidj	200 +	8	-, 0	+	-	R, F, M
Ailinglapalap - Airek	500 +	NA	+	+ to -	+	R, F, M
Kwajalein - Ebeye	8,000 +	13	-, 0	++ to -	-	R, F
Ujelang - Ujelang	500 left Oct. 1980	5.6	+	-	+ to -	R
Enewetak - Enewetak and Medrin	500 Oct. 1980	5.1	++	++	-	F
Rongelap - Rongelap	230		-, 0	-	-	R, F, M

* In addition there are 700 - 750 boarding students on the island.

monitoring at Ebeye may require additional manpower beyond the 2 that are needed now. Some lab equipment and supplies would be needed to perform the total coliform test. Also there needs to be a plan and trained personnel for routine cleaning and preventive maintenance of public water system cisterns, storage tanks or reservoirs and pumps (possible U.S. Environmental Protection Agency funding for this program).

Even though the water supply and wastewater systems in the urban centers of Majuro and Ebeye have inadequacies and many problems, many reports and considerable funding have been or are being directed to these systems. However, in many of the outer islands the problems are just as great (see Table 6) but little attention has been directed to them in terms of comprehensive studies and funding. A complete potable sanitary survey with bacteriological testing should be done on all the outer islands. Along with this survey and testing, an evaluation and report of the needs for upgrading toilet facilities to a minimum of one water seal pit privy per houshold (or dwelling unit) should be done except where low densities may make the traditional beach use adequate. Currently the Environmetal Health Division has a program for upgrading the toilet facilities in the outer islands but due to higher priorities, and pressures from the central urban areas, little progress is being made.

It is recommended that current Environmental Health staff and potential new recruits be identified to obtain professional training equivalent to certification issued by the Fiji Health Inspector Program. Funding for this training could be made available through World Health Organization Fellowships, legislative appropriations, regular educational scholarships and through funds designated for this purpose by this health plan.

There is also a need for improved coordination with the primary care workers (medex and health assistants) in the outer islands to aid in sanitation programs and education. To at least partly effect this it is recommended that short training courses in rural environmental health be provided for the outer island health workers.

It has been noted that many of the schools do not have basic environmental hygiene facilities, such as water for handwashing and minimally acceptable toilets. Since the incidence of parasitic and infectious diseases can only be prevented by methods which interrupt the fecal-oral route of transmission, and since students cannot be taught or practice these important methods when the school lacks the basic facilities, it is recommended that on-site documentation

of the sanitary deficiencies of all the schools be obtained. These deficiencies should then be discussed with the Department of Education and a plan for bringing the schools up to standards will be developed.

Table 6 shows that practically every island surveyed had rats that were considered to be a problem; most also had fly problems, and about half had mosquitoes. With proper frequent disposal of solid wastes, the use of water seal toilets, and the proper covering or screening of water supplies, rats, flies, and mosquitoes should all be minor problems especially around living areas. It is recommended that the Environmental Health Division treat serious rat, fly, or mosquito infestations on a case by case basis. One or two sanitarians should be trained and certified to apply restricted-use pesticides.

There is no building code in the Marshall Islands, which contributes to over crowding and inadequate sanitation in the urbanized centers. Note that the number of people per dwelling unit (household) is approximately twice as high in urban Majuro and Ebeye as in many of the outer islands (see Table 6). It is recommended that a building code be developed based on a permit system administered by the Environmental Health Division.

There are indications that toxic chemicals in the form of polychlorinated biphenyls (PCB's) have contaminated a storage area (for capacitors and other electrical equipment) and the public works yard in urban Majuro. It is recommended that soil samples in the PCB spill suspect area of Majuro and some samples of reef fish in the lagoon nearby be analyzed for PCB's to determine the degree and extent of contamination. Then in consultation with the U.S. Environmental Protection Agency a clean-up program should begin immediately along with measures taken to eliminate the problem source of the contamination.

Specific Recommendations

1. It is recommended that with the emergence of the status of a Freely Associated State and the dissolution of the Trust Territory, serious consideration must be given to the development of appropriate laws, rules, regulations and/or codes governing the activities and responsibilities of the Environmental Health Division. Also the various Environmental Protection Board functions will have to be assumed by local staff. The assumption of these additional responsibilities will result in a need for more skilled manpower.

2. It is recommended that for any major public works development funding be included for expatriate management until local personnel can be trained.

3. It is recommended that in order to adequately deliver Majuro water (in quantity and quality) the distribution system will have to be repaired or replaced.

4. It is recommended that the free residual chlorine level be tested daily in both public water systems and the total coliform bacteriological test be done 2 or 3 times weekly.

5. It is recommended that there be a plan and trained personnel for routine cleaning and preventive maintenance of public water system cisterns, storage tanks or reservoirs and pumps.

6. It is recommended that a complete potable water sanitary survey with bacteriological testing and evaluation of toilet facilities should be done on all the outer islands.

7. It is recommended that a staff sanitarian be hired to be solely responsible for the outer island environmental programs and inspections and that funding be budgeted to cover travel expenses needed to provide this service.

8. It is recommended that current Environmental Health staff and potential new recruits be identified to obtain professional certificate training.

9. It is recommended that short training courses in rural environmental health programs be provided for the outer island primary health workers.

10. It is recommended that on-site documentation of the sanitary deficiencies of all the schools be obtained and corrections recommended.

11. Since flies, mosquitoes, rodents and other animals feed and/or breed in the open dumping areas and can carry disease, it is recommended that a concerted effort should be directed at controlling this problem on a case by case basis.

12. It is recommended that a building code be developed based on a permit system administered by the Environmental Health Division.

13. It is recommended that soil samples in the PCB spill suspect areas of Majuro and some samples of reef fish in the lagoon nearby be analyzed for PCB's to determine the degree and extent of contamination and a clean-up program instituted as necessary.

6. Nutrition Services

Education in nutrition is a relatively new component of health care in the Marshalls. On October 1, 1980 the Government of the Marshall Islands hired a person to train nutrition aides. These aides, 16 in the first group, will work with the people in the community to promote better

nutrition planning. The same office will train food production field workers to help those who want to grow vegetables for their family consumption.

The Community Action Agency, a private organization, offers a family nutrition education demonstration program. They also offer an aging program which is primarily nutrition related.

The Department of Education has a health education program for all 10th grade students that includes a nutrition component. It also provides breakfast and lunch to all elemnentary and high school students and supper to boarding students at Marshall Island High School in Majuro and Jaluit High School. The Head Start Program offers breakfast, lunch, and a snack to children in that program. They also offer weekly meetings with parents to teach them about nutrition, child development, child health, etc. It is difficult to assess the impact of these programs.

Recommendations

1. Maintain a nutritionist as a regular component of the division of Primary Care with responsibilities for evaluation, education and promotion of nutrition programs.
2. Collect basic nutrition data so it can be evaluated and utilized in health planning.
3. Develop inservice education for health workers on the role nutrition plays, along with appropriate recommendations, in childhood diseases, pregnancy, hypertension and diabetes.
4. Develop community nutrition materials and programs for use over the radio and through community groups.
5. Encourage more research and development into food production methods appropriate for the atoll environment. Included should be coordination of nutritionists and agriculturists to introduce more fruits and vegetables into the diet. Recommendations for improving food production are on file at Loma Linda University.

7. Social Problems

In an attempt to meet the needs of the Marshallese people, services are provided by the Governments of the Marshall Islands and the United States, church groups and leaders, outside professional consultants, and local volunteers working in special projects.

The Department of Public Safety provides educational programs pertaining to safety and crime prevention, youth work programs, and Police Athletic Leagues for adolescents throughout many of the Islands. There are no juvenile probation officers on Majuro but Ebeye has 2 officers working with adolescents. Seventy-nine police officers work on Majuro, four of whom are women.

The Department of Social Services has five divisions of services. 1) Food Services for school programs and the Needy Family Distribution Program for families with low or no income. 2) Housing Services provide funds for low cost housing and assistance with housing construction. This service also administers Grant-in-Aid financial help programs for the outer islands and a Community Development Disaster Fund. 3) Senior Services includes Community Center Activities, medical services (health care, dentures and glasses), and a nutritional program. 4) Adult Services conduct women's workshops on parenting, nutrition, budgeting, First Aid, Leaderships skills, etc. 5) Youth Services sponsors recreation and sports activities, handicraft classes, music groups, Youth Conservation Corps, Boy Scouts and Girl Scouts clubs, and employment counseling services. The local radio station runs a weekly program by the Department of Social Services that focuses on information and educational comments about its services.

Local churches, church leaders and several private volunteer groups have developed service projects for a limited number of people in all age groups. They support food programs, recreation, groups that resemble Alcoholics Anonymous (Kwajalein) and Fighting Alcohol In the Marshalls (F.A.I.M.), a men's group in Majuro. Ebeye has had an Al-Anon program for several years. Other service programs include educational and work projects (handicrafts) and a women's group on Ebeye called, "Voice of Women" which raises money for hospital equipment and medical supplies or the local hospital.

Recommendations

1. Establishment of a Task Force of Marshallese and chosen consultants to develop guidelines for the implementation of social and mental health programs throughout the Marshall Islands.
2. Establishment of workshops/training programs to train health workers in social and mental health activities, and include these activities at each clinic and hospital throughout the islands.

3. Designate facilities (clinic/conference rooms and office space) in each hospital for individual or group meetings and for "Drop-In" centers for crisis and long term mental health services.
4. Develop mental health educational programs and "Hot Line" services on Majuro and Ebeye through established telephone systems for emergency crisis intervention.
5. Develop organizations of elders, adults and adolescent groups (separate groups for males and females) as support systems for persons in trouble (educational workshops, discussion and socialization groups, Big Brother-Big Sister Programs, self-help groups, etc.) to assist in the development of self-confidence and feelings of group cohesiveness.
6. Establish structured vocational skills programs and work activities for adults and youth to assist in the constructive use of leisure time and increase feelings of accomplishment.
7. Conduct workshops on family counseling, parenting skills, family planning and family life enhancement to encourage village stability and community involvement in problem-solving.
8. Develop workshops and village-based classes on substance abuse with a focus on directing personal energies toward constructive projects and away from destructive impulsive behavior.
9. Recruitment of village and community leaders to transmit knowledge of traditional folk ways to younger generations through community meetings, projects, picture and art shows at schools, and at community centers on special "Folk Day" holidays.

C. Clinic Services

1) Present Status

The present status of the clinical services delivered at the dispensary level in the M.I. was assessed through onsite visits and surveys to 22 of the approximately 63 clinics on about half of the atolls. The exact number of functioning clinics is not clear since some are not being utilized or are in disrepair. The maps in Appendix M show where all the clinics are located and the populations (1973 and 1977 figures) by atoll and by enumeration district.

For this report a detailed analysis of the survey findings is not included. As mentioned previously, four extensive survey forms were filled out on each clinic and the island environment - see copies in appendix. Following is a summary of information gathered from the survey forms.

a. Generally speaking the number of people served by each clinic is small, thus the patient load per health assistant is low. The number of people served per day at the clinics vary between none to 2-3 per day (unless a flu epidemic is being fought). The low numbers of births and deaths per month further confirm this fact. In fact, most care is delivered at homes by house call. Many clinics have a total population to be served of less than 200, few attain 500 or more.

b. The most frequent types of problems seen by the health assistants are those problems common to children and mothers, plus some chronic problems of older people (among which diabetes and hypertension are the most common). It is not surprising then that health assistants list as most common symptoms the following: flu (upper respiratory), headache, stomach, fever, diarrhea, skin problems, toothache, and diabetic problems (insulin shots).

c. Though from the patient loads it would appear there are too many clinics for number of people served, remoteness, bad weather, lack of transport, and poor supervision are all commonly a problem making effective access to health care, even to another island clinic on the same atoll, not always possible.

d. Real medical emergencies needing immediate evacuation to a secondary care facility are uncommon. For some clinics it has been as low as once in three years. Waiting times and access in such cases has been extremely variable but usually lengthy and costly, if at all possible.

e. The frequency of visits by supervisory staff for continuing education, resupply of medicines, and special clinics varies tremendously from atoll to atoll. It has been totally dependent on the "field ship" schedule (see transportation-communication section).

f. Medical records at clinics vary between none at some, poor to fair at the majority, and good at very few. The forms are generally too complicated and the system has broken down due to lack of supervisory support and encouragement.

g. Most of the health assistants visited in the survey are middle age to old. Most received their training in Majuro from navy corpsmen shortly after World War II. Their educational level is low (3-5 years of elementary school). Some of the newer recruits have high school education and have been trained in a nine-month health assistant program

in Majuro under Alec Keju. This program is presently shut down due to lack of funds either for training new health assistants or continuing education. Many health assistants in the field have not had a continuing education session for as long as ten years.

h. An attempt was made sometime in the past to have health assistants deliver services through regularly scheduled special clinics i.e. well-baby, pre-natal, etc. This generally broke down due to the small numbers of patients seen and inefficient use of the health assistant's time. Most health assistants have fallen back to going to the patient when called for by a family member instead of holding clinics at scheduled times. It appears that the community generally knows where to find him if he is needed.

2) General Recommendations

a. Expanded role of worker:

In the section on "public health" (see section B) an outline of the various service needs in the areas of preventive, promotive, and curative health was presented i.e. health education, maternal and child health, social problems, etc. It was recommended there that separate specialized supporting technical staff be provided at the central level to be responsible for planning and managing these services i.e. a "health educator" to plan and direct health education activities, a "sanitarian" in environmental health, "public health nurse" in maternal and child health and immunizations, etc.

Yet at the implementation level in the outer island clinics the emphasis will be on having the main primary care worker assume the "integrated" role of delivering all types of services - health promotion and prevention as well as curative services. Furthermore, it is felt that specific kinds of services (be they curative or preventive) should not be delivered by means of specialized clinics at limited times and days i.e. "well baby clinics" on one day and "family planning" on another day. In summary, the health worker at the primary care level is to serve an "integrated/expanded" role - he is to be the implementor of all health activities at the local level, and the patient will be able to receive a full-range of services at any particular time the clinic is utilized during its regular hours.

In practice this will mean the primary care worker will spend his time in the following manner: A certain specified number of hours each week will be spent at the clinic during which time an individual patient may come and receive general health services of both preventive and curative types including:

1. pre-natal services
2. delivery and post-partum services, and other obstetrical and gynecologic services
3. child health services (for children of all ages not just "under-fives" or "school age", etc.)
4. prevention/detection services for all desiring them i.e. immunization, detection and prevention of malnutrition, health education, screening tests for hypertension, hearing loss, etc.
5. communicable disease control as well as education i.e. parasites, TB, leprosy
6. health promotion counselling services i.e. smoking, alcohol, drugs, mental health
7. family planning-child spacing services
8. emergency curative services i.e. injuries, drownings, poisonings
9. chronic disease problems i.e. insulin shots for diabetics, etc.

b. Organization, supervision and stocking of clinic:

The clinic facility should be stocked, equipped, and organized in such a way that any preventive or curative service required by a patient can be delivered efficiently and quickly at one site. To achieve this several other things need to be done:

1. There is the need for one single "integrated" medical record system that utilizes individualized forms on which all information can be written irrespective of the types of services delivered. Separate forms for each kind of service delivered should be discontinued i.e. separate forms for maternal health, child health, general physical, etc. Streamlining of the record system will mean less work for the health worker and will be more meaningful to the patient. Accuracy in data gathering should also increase as a result. In this regard the use of a patient-retained comprehensive health care form is to be tested. The latter is a system in which most records are kept by the patient in a plastic bag and carried by him/her to wherever health services are delivered. This encourages patient cooperation and means all relevant background medical data is always available whether the patient is at a home island clinic or at another clinic away from home. This system has been found to work particularly well where the population is spatially mobile (as is the case in the Marshalls). Use of the radio for data reporting (i.e. monthly visits) is to be tried as

well. A sample of a child home based medical record is in the Appendix.

2. Medical supplies and equipment (i.e. teaching/counselling aides, contraceptives, food supplements) must be immediately on hand in the premises. Furthermore, the resupply and inventory system should be tied directly to the patient-care record system.
3. The primary care worker must be trained in all the skill areas expected and given the opportunity to practice such an integrated approach under appropriate supervision. It will be difficult for this concept to be put in practice by the primary care worker unless he has seen it work, is convinced it is better, and has the chance of trying it out.
4. The need for continuing and timely positive support and constructive supervision from the central office by specialists of several kinds is mandatory i.e. health educators, public health Nurses, sanitarians, nurse-midwives, etc.
5. Upgrade the communications system to allow for guaranteed contact with a higher trained health professional, whenever that contact is deemed necessary by the clinic worker. This may be through a walkie-talkie type radio contact with the main clinic where a "beeper" or other device is always being monitored by someone (the wife) who can go call the medical assistant. The medical assistant in turn will be the main contact person with the central facility in Majuro or Ebeye if an emergency call for referral or consultation is required. At all times of the day the medical assistant will have a supervisory medical officer or physician on call at Majuro or Ebeye to answer questions and to decide whether referral is needed.

3) Community Health Activities

Besides specified hours allotted at the clinic for "walk-in" curative and preventive services oriented to the individual patient, there will also be other regular periods scheduled for specified community health activities (these may be on a daily, weekly, monthly or other schedule as befitting local needs). It will be the duty of the primary care worker to lead out in such activities as:

a. nutrition/health classes at the school or church.

b. special screening days for particlar problems, possibly in conjunction with visiting health specialists i.e.
   1. dental screening (dentist)
   2. diabetes/hypertension (internist)
   3. orthopedic problems (orthopedist)
   4. eye problem screening (ophthalmologist)

c. organization of weekly/monthly "clean-up" days, building of latrines, penning of animals

d. joint work with agricultural extension agent in food production extension and education activities.

e. minimum maintenance/repair of clinic facility and equipment

f. organization of special activities and classes for the elderly (besides home health counselling)

g. statistical surveys/record keeping for assessment of health status and need

h. training of community leaders and other volunteers in basic first aid and health promotion skills

i. supervision, resupply and upgrading of traditional birth attendants

j. Other activities as determined by community and health care system

D. Hospital Services

1. Secondary Care

Majuro: The hospital at Majuro will be the major health/hospital facility (100 beds) in the Marshall Islands. It is proposed that the level of care available be significantly upgraded. This will require major changes in physician staffing, equipment, and support services from present levels.

With the primary care physician services such as internal medicine, pediatrics, obstetrics/gynecology, and general surgery, nearly all of the medical/surgical problems encountered in the Marshall Islands can be adequately treated at Majuro or Ebeye hospitals. To provide such services requires not only adequacy in physician services but all of the support services necessary such as: laboratory, x-ray, anesthesia, respiratory therapy, critical care unit, etc. Additional expertise is planned in the manpower section where one extra physician is budgeted to allow for consultants in specialized areas to make

periodic visits to Marshall Islands for specialized surgery or medical consultations. With this plan special problems in the areas of ophthalmology, otolaryngology, urology, orthopedics, cardiology, dermatology, etc. can also be adequately treated in the Marshalls thereby reducing the number of referrals for tertiary care.

Ebeye: The hospital at Ebeye (50 beds) will be staffed and equipped to provide secondary care but at a lesser level than at Majuro. Whenever possible complicated cases will be referred to Majuro or provided by the Majuro staff commuting to Ebeye.

2. Tertiary Care

With the upgrading of medical services at Majuro, it is anticipated that the referral costs for tertiary care to hospitals outside the Marshall Islands can be substantially reduced. Most referrals presently go to Tripler in Hawaii. It is recommended that other facilities, such as Queens, Castle Memorial, and Straub Clinic in Hawaii be considered as alternatives. These facilities were evaluated and can provide complete tertiary care, including cardiac care and open heart surgery.

E. Specialty and Rehabilitation Services

1. Dental

Currently the three dental officers and their supporting staff in Majuro are providing dental examinations, basic restorative care, prophylaxis, x-rays and treatment of jaw fractures, minor surgery, extractions, and health education. In addition, the dental public health section has attempted three additional services - dental maternal and child health services, school dental programs, and field treatment programs. The maternal and child health services are primarily educational, providing young mothers with information that hopefully will be incorporated into their child rearing practices. The school and field programs include examinations, extractions, flouride mouth washer for children, and education. Though a stated objective, these latter services have not been made available on the outer islands because of manpower, budgetary, and equipment limitations. The short and unpredictable duration of field ship stops (1-2 days) has made them an unreliable transport mechanism for these services.

In summary, essentially no dental services are provided outside of the two urban centers. A traditional lack of fluoride and an increasing consumption of refined sugar has produced an epidemic of dental disease. A systematic program of fluoride application, early detection and treatment, and dietary education is needed to slow down the epidemic. The existing dental staff may be able to handle the additional work load through reorganization, but the transportation limitations make this impractical for many atolls.

Recommendations

1. Improve the equipment and supplies at Majuro and Ebeye so adequate secondary level dental care is available at each site.
2. Add selected manpower (see section IX) to provide for more effective working ratios.
3. Develop in-service education, either in-nation or abroad, to maintain skills in each area.
4. Incorporate the dental public health functions of fluoride application, early detection and simple extractions, and dietary education into the curriculum and in-service education for medical assistants (medex) and health assistants so these services can be available on outer islands through the regular health network.

2. Physical Therapy

The services of a physical therapist are extremely important in the management of some acute and many chronic conditions. As the categories of disease change more and more to that found in industrialized societies with more of the cardiovascular health problems, there is more and more need for physical therapy services. Services are needed for victims of "stroke" and orthopedic disabilities. At the present time there is need of physical therapy for victims of polio with varying degrees of paralysis. There is and will always be a need for physical therapy services for traumatic injuries to prevent deformity and maximize residual function. Many contractures and functional limitations could be eliminated or reduced with appropriate physical therapy begun shortly after injuries or burns.

VII. Support Services

A. Administration

The effective administration of this division is critical to the success of the health care delivery system. Under this division the purchasing of supplies, the providing of preventive and required maintenance, and the coordination services for health care is domiciled. This division will have to work closely with all the other divisions to meet their needs in an economical and efficient manner.

In the discussion which follows each area is defined providing their respective concerns and responsibilities. The general area of support services has been a major problem for the present health delivery system. It is felt that by having the support services as a free-standing division a more uniform and efficient system can be put into place.

B. Supplies

Supplies have been a perpetual problem for the Marshall Islands health care system. Because of the lack of supplies some services have been discontinued, compromised in quality, or delayed in delivery.

At or near the root of this problem is the fact that bills are not consistently paid and the outstanding debts have caused many suppliers to discontinue service to the Marshall Islands. This has resulted in shortages in various areas from time to time, both in the hospitals and outlying clinics and also in premium prices being paid for those supplies which are purchased.

Another difficult area is that surrounding the inventorying, distribution, and consumption of supplies. There is essentially no system of monitoring and control, particularly with the outlying clinics, but also in the hospitals. There have been times when departments would need certain supplies and they have been told that there was none, only to discover later that a significant quantity was on hand. The Adventist Health Services has recently begun working on this problem by taking complete inventories of their hospital supplies.

Delivery of supplies to outer clinics has been a problem from time to time since it is largely dependent on the copra field ships. These ships routinely make stops at the various atolls for the purpose of picking up copra, but can be used to carry supplies to the atolls. Their schedules, however, are somewhat tentative, and breakdowns periodically occur which can drastically alter their arrival.

Some improvement has come with the initiation of service from Air Marshall Islands. This is used and should continue to be used only as a supplementary means of distribution since it is significantly more expensive.

Recommendations :

1. The problem of not reimbursing suppliers should be taken care of through the administrative structure suggested in section IV. With these suggested changes it should then become more feasible for the funds budgeted for supplies to be available for prompt payment of invoices.
2. A separate department should be set up independent of the hospitals for the organization, coordination, and control of the supply function for hospitals and clinics. The person in charge should have sufficient expertise and experience to handle the inventory control and supply system for a health care system of this size. The physical location of this department can remain at the hospital provided adequate storage space exists.
3. Development and maintenance of standard inventory lists for each of the hospitals and outlying clinics. One list could be developed for use in most of the clinics since their situations will most likely be very similar to one another. Lists such as these would make it very easy for the community health worker or health assistant to determine which supplies they are in most need of. This same reasoning would also apply to the hospitals. As new supplies are adopted, additions and deletions should be made to keep the list up-to-date.
4. Development of usage patterns related to workload so as to be able to establish standing orders of some supplies and anticipate needs of all units.
5. Biweekly communication between the central supply depot and outlying centers with regard to needed supplies so that the central supply depot can make use of all opportunities to keep the outlying units supplied. For example, a particular clinic may be running low on a particular medicine due to a local epidemic. If the central depot is kept aware of the situation, alternate emergency shipments may be arranged for through private boats or through Air Marshall Islands.

6. Subcontract the purchasing of supplies to a group purchasing organization. With the current contract between the Marshall Islands and the Seventh-day Adventist Church a likely organization would be Adventist Health Services West in Glendale, California, although there are other organizations who could also serve this function. This should result in lower prices and better servicing. At the same time a regular delivery schedule should be worked out for the delivery of supplies to the Marshall Islands via Matson Lines and Nauru Shipping. By using both of these carriers adequate supply levels should be maintained. Should any emergencies occur air freight could be utilized with either Continental Airlines or Military Air Command through Kwajelein.

C. Maintenance

One of the factors limiting the level of health care delivery is the inadequate maintenance provided for the physical plants. Lack of maintenance has led to such problems as leaking roofs causing damage to supplies; deteriorating machinery in laboratories and other departments causing poorer quality tests and services (i.e. hemodialysis); and breakdown of refrigerators resulting in decreased storage capacity for perishables and therefore a decrease in activities which depend on the use of perishables (i.e. lab tests, medications). Other areas which have suffered are the emergency electrical system, the plumbing system at Ebeye, and the air conditioning at both hospitals, to name only a few. In a climate such as the one found in the Marshall Islands where the salt air is highly corrosive, and the general quality of public utilities is substantially less than that generally encountered on mainland U.S., it becomes increasingly important and in fact imperative that a top quality maintenance program be developed for the hospitals in order to maintain the desired level of health care and keep capital costs to a minimum.

Currently the maintenance is being provided by the Public Works Department of the Marshallese Government. This, however, has been unsatisfactory from the hospital's perspective although probably understandable since the Public Works department has many other responsibilities, limited budget and it would be difficlt for them to provide the special service which the hospitals require.

It is suggested that the hospitals develop separate maintenance departments completely dedicated to the maintenance of the hospitals and their equipment. They can be trained to handle the special equipment found in the hospital and be ready to deal with the emergencies which invariably come. Some equipment will obviously need to be sent out to be repaired; however, much of the routine preventive maintenance should be provided locally.

In support of this, the budget which has been allotted to Public Works for maintenance of the hospital should be reallocated to the hospital for use in the support of its own department.

An alternative to the health care system providing its own maintenance would be to contract out to an organization such as Global Associates for all maintenance work or some of the maintenance on certain more technical pieces of equipment. A study should be done to see which would be the more cost effective and efficient. A third alternative which could be done in conjunction with either of the preceeding two would be that a contract could be arranged for the training of specialized repair technicians. The latter would facilitate the ability of the Marshallese to eventually handle their own health system by themselves.

Recommendations

1. Separate the maintenance budget from Public Works Department and include it in the health care budget. Work performed by Public Works would be paid from the health care system.
2. Examine potential for a training contract with Global Associates to prepare personnel to perform more technical maintenance activities.
3. Capital expenditure should be made to bring the facilities and the equipment up to an acceptable standard in each health delivery location.
4. Outer atoll clinics should be equipped to perform simple routine maintenance on their equipment and facilities, and one person on each atoll should be trained to perform the necessary duties.
5. The hospital in Majuro should be established as the central location to send the more difficult repair problems which cannot be handled on the outer atolls. (It is expected that some repairs cannot be handled in Majuro will need to be sent out of the Marshall Islands.)

D. Transportation

Patients must be moved from out islands to regional clinics and hospitals at Ebeye or Majuro for both routine referral and in emergencies. Occasionally they must be transported to tertiary care centers outside the country. Clinics must be resupplied. Senior medical staff need to make supervisory visits to the clinics and special task public health teams must visit schools and communities. Personnel need to be rotated for vacations and continuing education. Preventive maintenance visits to each facility must be made on a regular schedule.

Present System

Government field ships visit the out islands on a semiregular schedule to collect the copra crop. On a space available basis, they provide transportation for health personnel and patients. Visits to some islands are made no oftener than every four months or even longer when equipment is not available or weather adverse. With very few exceptions transport between islands of an atoll must be by private boat or canoe. Airstrips served by STOL aircraft of the Airline of the Marshall Islands are operational on Majuro, Ailinglapalap, Enewetak, Likiep, Mejit, Meloelap, Kwajalein, Ebon and Wotje. In an emergency, priority transport is available by AMI from these islands. Ships within Marshallese waters may be diverted at a cost of $1200/day to transport critical patients either to the nearest airfield or hospital. Transportation to tertiary care centers is available through Air Micronesia. The present intralagoon system is being expanded by the addition of government lagoon boats under the control of the magistrates and available for all government transportation needs including those of the health care system. Airstrips are scheduled for completion within the next 24 months on all atolls with enough space. These expanded facilities will provide transportation most of the time for most of those needing it.

Recommendations

1. As far as possible, the Health care system transportation needs should be filled by existing government field ships and airline. Special task teams may require chartered transport. The Marshallese Government should be encouraged to complete the planned airstrips and lagoon boat systems as soon as possible.

E. Communication

The very large geographic territory served by the health care system of the Marshall Islands creates unusual communication requirements. Health Assistants need consultation hours with their supervisory medex (medical assistants). Typically these can be scheduled at specific regular times. Supply requests may be forwarded to a central logistics support facility at similar scheduled times. The community health aids also need to communicate with their supervisors in emergencies at unexpected and unscheduled times 24 hours a day. Communication links must be reliable and available at all times.

Present System

Telephone systems exist only in the urban areas and do not extend to the outer islands. Written communications are restricted by the transportation system. High frequency single side band transceivers powered by gasoline generators were installed in many of the outer island clinics and in magistrate's offices. The harsh marine environment and operating conditions have resulted in rapid deterioration of equipment. Most units have been returned to Majuro for repair. The highest priority has been given to the magistrate's radios. None of the clinics now have radios. Those clinics near a magistrate depend on his radio. A few borrow (rent) privately owned walkie-talkies to relay requests to the magistrate on their atoll for forwarding via his radio to Majuro. But many are now without communication capability except by word of mouth or field ship. Reliable communications using the current high frequency equipment is possible only part of the time because of atmospheric disturbances from storms and varying skip disturbances caused by variations in the ionosphere. Under these conditions messages can be relayed from one station to the next. But this is practical only at scheduled net times when all stations are attended. For emergency communications at other times only one unmanned station blocks the relay of messages. No attempt is made to man all of the stations except at the weekly scheduled net times. Plans to restock the clinics with new high frequency transceivers will not resolve these problems. A multichannel solar powered VHF system is being discussed, but will still have incomplete coverage, requiring relaying of messages. Highest priority will still be for services other than health.

Recommendations :

Communications reliability 24 hours a day, 7 days a week, over a region the size of the Marshall Islands can be achieved most effectively using geosynchronous satellite-based systems. Numberous problems - political, policy, and budgetary - appear to be delaying installation of such a system. A hard wired system appears unrealistic due to low density use and cost of a submarine cable network. Until a satellite-based system can be installed, high frequency radio communications must be restored for the outer island clinics. Preventive maintenance must be provided on a regular basis. Defective units must be replaced with loan units until repaired. Communicative links must not be disrupted if adequate consultation and emergency service is to be provided. Communication modes at secondary care facilities and supervisory sites must be monitored continuously for emergency traffic.

VIII. Health Facilities

A. Clinics

1) Present Status of Facilities/Equipment/Supplies

As part of the "health resources" survey at each clinic visited, an inventory of equipment, facilities, and supplies was done. (Detailed results are available from the Loma Linda University team - they are not included here due to lack of space. Copies of the forms used for the inventory are in Appendix G). Briefly the present status is as follows:

a. All clinic facilities need some repair of windows, doors, roofs, etc. Some may need total replacement.

b. Very few havd functional toilets, washing facilities, or water catchments.

c. Not one functional refrigerator was found though many clinics were issued one. Many had never worked because the health assistants did not know how to light the kerosene wick element or insert it (most wick elements were damaged). Fuel was often not available even if the refrigerator had worked. Most of the refigerators were too large and complex for existing needs.

d. Very few of the beds, mattresses, and examining tables were in good condition (rarely do the examining tables have stirrups for deliveries).

e. Common health assessment tools and equipment such as otoscopes, stethoscopes, blood pressure cuffs, scales, etc., were either never issued or non-functional.

f. Sheets, towels, and other linen were largely non-existent.

g. The medicine and medical supply situation varies tremendously with the clinic though the most common situation is the following:

1) No family planning supplies (intrauterine devices, condoms, pills, etc.) were found anywhere.

2) Expendable supplies such as splints, bandages, adhesive tape, cotton, bandaids are very seldom in enough supply.

3) Often clinics are over-stocked in some items i.e. intravenous solution and yet few have syringes (particularly diabetic syringes)

4) Many medicines were out-of-date or unused, often because the health assistant did not know what they were for.

5) Blood pressure, diarrhea, skin and eye medicines were often totally lacking or inadequate.

6) Continuing education and supervision in areas of medicine use and equipment maintenance is lacking.

2) Recommendations:

a) Physical plant:

One clinic site on each atoll should be designated for upgrading to a "health center". The present size and design of the newest Hill-Burton clinics (about 1000 sq. ft.) is more than adequate for a "health center." Additional building of an open-air "group-meeting place" for health education group activities, group immunization, pre-natal classes, is needed at most facilities. This can either be attached to present structures or built separate out of local material (thatch). It should be at least 30' x 30', open at sides (for good lighting and ventilation), have a large work table, and wooden benches (or raised seating built in slab concrete around edge).

In addition to the main clinic building (as in the Hill-Burton type) and the "group meeting area," the only other building need is for adequate housing for the medical assistant and his family adjacent to the clinic (unless it is available as part of the clinic structure itself). This dwelling should not be extravagant, but attractive, and large enough for a growing family. Good housing will be a principle motivating factor to induce medical assistants to accept posting to the outer islands.

The present Hill-Burton Clinics are designed with:

1. three patient rooms (with cabinets for storage and sink)
2. one small office/reception area
3. one medicine storage and/or examining room
4. combined kitchen and sleeping quarters for the health assistant (could be used as additional holding area or for delivery of babies)
5. indoor bath/water-seal toilet facilities for patients and health assistant
6. water storage tank and tower (for running water)
7. outdoor water-seal toilet (separate for outpatients)

With additional attached or separate housing for the medical assistant and the group meeting shelter, the present Hill-Burton clinic design is adequate. Some of the atolls already have these new Hill-Burton facilities in the right places (near the population center and where airport is to be) i.e. Arno-Ine Island. Many poulation areas, unfortunately, do not have adequate facilities or they have fallen into disrepair.

Some of the newer Hill-Burton clinics were built where there is no real patient load. The possibility of dismantling and moving some of these misplaced Hill-Burton clinics should be explored. At least 1/2 - 2/3 of the present clinics will probably need rebuilding. At all "health center" site additional upgraded housing for the medical assistant and the group meeting shelter will be needed.

Thus it is estimated that 21-25 atolls and islands will need Health Centers (some may need two because of the size and remoteness of islands within the lagoons). Probably 5-7 of them are presently adequate except for minor repair, leaving 16-18 needing total replacement. Some of the smaller atolls and islands (which will only have health assistants due to low populations) will need only a small clinic and many already have one i.e. Ujae. Some criteria are stated below for the physical facilities, along with preventive maintenance suggestions and some equipment recommendations.

Recommendations:

1. It is recommended that the clinic size be maintained at about 1,000 square feet maximum.
2. Alumninum (preferably) roofs should be used where possible. Furthermore this roof should be used for water catchment, draining to a cistern of sufficient dimensions to provide for dependable fresh water year round.
3. Water seal toilets must be provided, both for patients in holding beds, and outpatients who need a separate facility.
4. Windows and doors must be of a low maintenance type and of considerable durability. Plastic is strongly recommended. Fiberglass products, especially in the medicine cabinet areas, are the desirable choices.
5. Plumbing must be plastic, with all the fittings preferably plastic also. Pumps to raise water to tanks must be the simplest possible and materials for maintenance must be available locally.
6. The two present superclinics are oversized and underutilized. It is recommended that a standard size clinic-health center be built to serve Jabor on Jaluit and the Wotje/Wotje population center where superclinics are now present. The existing physical plant on Wotje could be used for other community services.

Preventive Maintenance needs:

1. A preventive maintenance schedule must be provided with the equipment, and the health worker trained to maintain the equipment. Occasional preventive maintenance checks from the central support service section on Majuro are needed also.

2. Health personnel will be accountable and responsible for maintenance of their clinic. Trained personnel will be utilized in a supervisory capacity for on site visits and specialized repairs.

b. Equipment

The equipment and supplies at present are negligible to non-existent at the clinics. Those that will be upgraded to health centers will need the following:

Equipment (medical assistant level):

3-5 holding beds (with heavily protected mattresses)
1 delivery/examining table (aluminum frame)
*1 small refrigerator (kerosene or solar)
small desk and file for health worker
2 sterilizers (one back-up)
medical records box (with extra records, forms)
portable emergency med/equipment kit (to take with him at all times)
plastic adult scales (with height measurement device)
generator and/or solar panels with storage batteries
**radio + "beeper" system
plastic baby scales - salter (sling) type (2)
fiberglass cabinets for medicine storage (built specially to accommodate the required inventory and to make resupply and reordering easy)
solar powered light in clinic plus back-up gas lantern for night emergency work
field microscope kit (comes in own box with needed reagents)
vision chart (2)
obstetrical delivery kit
otoscope (2)
ophthalmoscope (2)
reflex hammer (2)
blood pressure cuff (2)
stethoscopes (2)
fetoscope (2)
tape measures (2)
small blackboard on tripod
flip charts
slide/filmstrips (2)
models i.e. for prenatal classes
gardening tools (kitchen garden)
work tables (2)

rough benches (4)
plastic heavy duty chairs (6)
local stove and fuel (for food demonstration)
assorted pots and pans (for food demonstration)
(optional) sewing machines and other craft tools

*The small refrigerator should be electrically powered from a solar rechargeable battery, and of sufficient volume to hold the vaccines and insulin. However, it should be too small to be used for holding fish, coconuts, melons, etc. It must be plastic and of entirely non-corrosive materials.

**The radio for each clinic should be solar powered as well (with possible gasoline generator back-up) and environmentally protected in a watertight case. A "beeper" system should be provided to establish when the unit is being called. It is suggested that a watertight flashing light and bell system be utilized.

c. Basic supplies & medicines:

The supplies and medicines needed by the medical assistant will fall into the following categories (an expanded list is in Appendix J).

linen/towels, etc. for beds
splints
dressings
bandages
contraceptives
pain medicine
antibiotics
parasite medicine
eye/ear medicine
skin ointments
oral rehydration packets
diarrhea medicine
blood pressure medicine
diabetes medicine
toxic coral stings i.e. epinephrine, benadryl
syringes (including insulin)
needles
other

d. Location of "Health Centers"

The present location of clinics is given on the maps found in Appendix M. A minimum of one "Health Center" should be located on each of the 21 atolls/islands listed under "health manpower". The main clinic-health center should be on the island within the atoll that has the largest population concentration, and be near to the either existing or proposed airport (for medical evacuation of patients). Where the atoll does not foresee getting the "lagoon boat service" implemented (as planned by the government), or, where the distance is too large and weather dangerous during times of the year, then an additional "health center" may be warranted. Where to place them should be decided in 5-7 years when the initial centers are well established. In the meantime health assistants working out of existing clinics should continue to function in these remote areas.

B. Hospitals

1. Physical plant

Majuro: The Armer Ishoda Memorial Hospital is approximately 53,000 square feet in area with 88 beds. Because of poor maintenance and environmental problems, not all beds are available for use. The same would hold true for the facility itself. The facility design is quite good for the climate conditions. No attempt was made to compare or evaluate in terms of U.S. standards. As compared to other third world hospitals, it should probably receive a fair rating from a design and condition point of view.

Although in disrepair, the facility itself could be upgraded to adequately support the level of care anticipated to be provided in the Marshall Islands. This appears not to be an option, however, as the ground lease expires in two years and the owner is not willing to renew the lease. There have been funds ($8,000,000) granted for a new hospital. It is recommended that the new hospital be a 100 bed hospital with careful consideration given in the design to meet cultural needs and the environmental (climate) issue. A U.S. type hospital would not be effective in meeting these concerns. The hospital must not be over-designed but designed for a level of health care delivery consistent with that to be provided. An example of the type off issue that must be dealt with in the design is the need for a larger than normal recovery and rehabilitation area. This is due to the large referral area being served and the lack of following care available away from the hospital.

There is not adequate equipment to meet the medical needs of the hospital. There appear to be two major reasons for this deficiency. One, little or no maintenance; and two, no long-range planning as to direction, level of care, or future needs. Long-range planning seems to be absent from most of the present health care system. In buying equipment for the new hospital, it must be related to the level of care being provided and must have available support maintenance or it is of little value to the provider of health care.

Ebeye: Ebeye Hospital is approximately 19,000 square feet in area with 20 beds. The environmental problem has had its toll on the facility and available beds. Of major concern with the Ebeye Hospital is its design. It was designed for forced air which is not functioning most of the time. Because of this design there is no natural flow of air, creating some real health problems. With some careful planning the plant could be improved to meet the health care needs it is to serve. As is seen over and over again, a good maintenance program would do much to improve the situation.

It is recommended that the hospital be expanded to 50 beds with the same design concerns that were mentioned for the Majuro Hospital. This increase will be needed to support the higher level of care to be provided and population increases.

2. Laboratories

Present System:

The hospital in Majuro is served by a small clinical laboratory staffed by the former chief laboratory technologist for the Trust Territory and five bench-trained laboratory assistants. This year a Peace Corps volunteer with American Society of Clinical Pathologists (Medical Laboratory Technician) certification is helping. The lab assistants have been cross-trained for each section of the laboratory. Continuing education is provided by the chief technologist and by participation in workshops at the Ponape campus of the Community College of Micronesia under World Health Organization sponsorship. Routine cytology, histology, bacteriology, urinalysis, and hematology procedures are offered. Only limited chemistries are available. Blood banking utilizes walking donors. Surgical pathology specimens are grossed and the micro interpreted by a senior medical officer. Problem cases, tumors, and special requests are referred to Hawaii for pathologist consultation.

Major problems include a lack of chemically pure water, inadequate reagent supplies, inordinate delay in obtaining supplies and repairs, and no mechanism to develop new staff to fill vacancies caused by normal attrition.

Ebeye Field Hospital has two laboratory assistants and is very limited in procedures available. The x-ray technician is cross-trained to do Complete Blood Counts and urinalyses. Unofficial assistance from DOE and DOD project laboratories for needs beyond its capability occasionally are obtained. Lab service has been planned for the super clincs, but implementation thus far has not succeeded. Dip-stick or Clinitest tablet testing for urinary glucose is available in some of the community health centers.

Recommendations:

The increased clinical capability planned by adding specialty consultants to hospital staff and providing some tertiary capability requires major enhancements to the laboratory service.

1. Senior technologists (American Society of Clinical Pathologists (Medical Laboratory Technician) or equivalent) are needed at both hospitals to expand the types of procedures available, particularly in clinical chemistry.
2. Chemically pure water must be provided at both hospitals. A permanent multiple cartridge recirculating filter deionized water system (Barnstead type) should be installed at Ebeye and is absolutely essential at Majuro.
3. Analytic balances, pH meters, and volumetric glassware for preparation of reagents, standards, and quality control materials should be available at both hospitals.
4. Both should subscribe to and participate in a proficiency survey service.
5. Additional equipment and instrumentation should be provided to measure blood gases, enzymes, lipids, and a complete elecrolyte panel.
6. Arrangements should be made for timely support by reference laboratories for those tests that remain beyond the capability of the local hospital laboratories.
7. Normal and abnormal level quality control specimens must be run in parallel with patient samples.
8. Budget and time for all lab staff to participate in workshops and other continuing education activities must be provided.

9. Regular preventive maintenance must be scheduled.
10. An inventory of spare parts for field repairs should be obtained and maintained.
11. Replacement of equipment and instrumentation should be planned and budgeted for an average life of 3 to 5 years. Some instruments may need replacement even earlier due to the effects of high humidity and salt from the sea spray.
12. As superclinics become staffed with Medex or higher level personnel, they should be equipped to do stool exams for parasites, complete blood counts, urinalysis, and blood sugars.

3. Radiology

Present System

Diagnostic x-ray facilities are operational at both Majuro and Ebeye. Fixed instruments are modern; portable equipment obsolete. Films are processed by hand. X-ray technicians were trained initially in Saipan and are now giving on the job training to their assistants. They do non-invasive studies only. Films are interpreted and brief reports written by the ordering physician. Super clinic x-ray facilities are not operational.

Recommendations:

Shielding in x-ray examination areas should be extended sufficiently to prevent patients and employees in adjacent areas from being exposed to more than the allowable dose. Film badge services or other appropriate monitoring of x-ray personnel should be provided. Arrangements should be made for periodic review of technical quality and accuracy of interpretation of films.

4. Supplies

Up to the present time the hospital at Majuro has been the central depot for all supplies both organizationally and physically. With the suggested upgrading of health services at the primary and secondary levels this will become increasingly more difficult. As a result it has been suggested that a completely separate division be established to handle all the supplies of both the primary and secondary health services. While this represents a change organizationally it is suggested that the physical location of the central depot remain at the Majuro Hospital. This would mean that the hospital would no longer order supplies directly from the suppliers but would

instead order them through the Support Services Division and all matters related to the ordering, inventorying, and storage of supplies would be handled by that division and not by the hospital.

5. Medical Records

The present medical records system is not adequate to meet even minimal standards. Although color-coded file folders have been ordered, this will not create a medical records system that is compatible with and supportive of the primary clinics and their needs as well as those of vital statistics. There are no easy solutions to the problem given the mobility of the people, the cultural situation, and the present method of keeping records. In the design of a system, consideration must be given to retrieval, training, primary care, vital statistics, peer review, legal needs and requirements, and quality control mechanisms.

IX. HEALTH MANPOWER

A. Introduction

There are various levels of medical practitioners based on function and responsibilities involving both the medical and nursing cadres. Primary medical care is usually rendered by the health assistant whose training varies from minimal instruction and continuing education given by a mid level practitioner to a more formal course, often of approximately six months duration. Approximately 55 health assistants have been trained for duty in the Marshalls.

The largest problem at present in terms of manpower is the high attrition due to retirement and lack of a recruitment system to encourage young people to enter the system. Incentives to enter the health system are very low compared to other types of government service. Within a few years severe shortages of all types of health manpower are to be experienced unless something is done soon.

In developing medical manpower programs it is important to establish a scheme of service to enable every qualified person to advance according to his ability, interest and effort. All training programs, licensing procedures, work assignments, salary scales, etc. should reflect such a scheme of service or career ladder. After appropriate periods of service and work recommendations, selected health assistants could advance to medical assistants and from there potentially to medical officers. Likewise nursing assistants should be able to advance to practical nurses and from there to graduate nurses and on to become bachelor or master degree nurses many of whom would become specialists in specific nursing areas such as administration, education, public health, midwifery, critical care, etc.

In general there are sufficient educational institutions for the various health manpower needs in the South Pacific areas such that it should not be necessary to establish any new schools for manpower training programs.

B. Administrative

The administrative structure must be clearly defined so that all employees will understand the line and staff organization. One of the current problems is that of insufficient authority of Marshallese supervisors. Many of the nursing personnel report sick or are late in returning from vacation, sometimes even months late, yet continue to receive

regular salary checks for duties not performed. Instructions given by work supervisors are often not carried out.

The incentive and morale of health workers is very low. It is recommended that salaries and other benefits for health workers be increased (particularly for those who work on the outer islands) so that new recruits can be obtained. Rewards, both monetary and otherwise (i.e. awards, bonuses, position advance) should be given specifically to those medical assistants who fulfill their "expanded roles", both curative and preventive, and who remain in the rural areas. The present reward system favors moving to Majuro. A great effort should be made so the first priority in equipment, supplies and supervisory support be given to the outer islands. This will help change the perception that "only the flunkies" get sent to the outer islands. Housing, food, and other domestic needs of the medical assistants must be adequately taken care of as well. It is suggested that the staff housing on the outer island health centers be better than in Majuro and provided without rental charge, while in Majuro a rental fee is required.

Perhaps the greatest administrative problem is that of not having sufficient trained administrative personnel. In most developing countries technical and professional personnel are available before administrative and support personnel, such as accounting. This often greatly hinders the progress of the professionals due to inefficient administration and inappropriate manpower utilization. In the Marshall Islands this situation exists, compounded by an extreme lack of all personnel including the technical and professional. It is further complicated by the low incentive such that at present there are essentially no candidates in training in nursing schools, medical assistant schools, medical officer schools, or ancillary medical worker schools.

This situation requires that at present an inordinate number of expatriate personnel must be utilized. In all such cases it is strongly recommended that Marshallese counterparts be identified to work with the expatriate for on-the-job training and experience and that additional Marshallese personnel be selected for training at appropriate sites.

It is strongly recommended that the organizational pattern as outlined previously be followed. The specific intent is to emphasize the rural health component to avoid the all too frequent utilization of 90% of the manpower and budget for approximately 10% of the population that surrounds the hospitals. This plan requires the establishment of five offices, each headed

by a strong, and at present expatriate, leader. These divisions are as follows: 1) Primary Care/Public Health, 2) Secondary Care (hospital staff), 3) Support Services, 4) Planning and Evaluation, 5) Manpower Training.

1. Primary Care

This division will be headed by an expatriate physician with public health training, with a Marshallese counterpart who is a Medical Officer with public health training. They would be responsible for all primary care and public health activities. Their staff would consist of seven medical assistant or graduate nurse specialists, all of whom would have had public health training. These personnel would carry out preventive activities in areas of health education, maternal and child health, communicable diseases, chronic diseases, environmental health and sanitation, nutrition, and mental health and social problems. The staff would also include two sanitarians and four secretaries.

2. Secondary Care

As with most health care institutional operations, there is need for a large number of personnel to care for acutely ill patients that require services 24 hours per day, seven days a week. The secondary care portion of this health care plan requires by far the greatest number of personnel of the entire health care system. Hospital management follows a more clear cut plan of administration and personnel requirements than do rural health care components. The manpower needs for secondary care can be understood by reference to the list of manpower requirements included at the end of Section IX.

3. Support Services

One of the most important components of a successful health care plan is that of support services. Without supplies, transportation and communication, even qualified personnel in the rural areas are unable to satisfactorily perform their duties. The Division of Support Services would be headed by an expatriate director and due to non-availability of qualified Marshallese personnel each of his section chiefs would also need to initially be expatriates. This includes the Maintenance Officer, the Transportation and Communication Officer and the Officer in Charge of Supplies and Inventory. Other staff include pharmacists, secretaries, repairmen, etc.

4. Planning and Evaluation

The Division of Planning and Evaluation is essential for continued progress and monitoring of health care functions. The head of this division

would be an expatriate Health Planner whose staff would include an expatriate statistician/epidemiologist, two clerks, one secretary and one vital statistics officer.

5. Manpower Training

The Division of Manpower Training would be headed by an expatriate medical educator. It is recommended that this division serve primarily as a facilitator and liasion officer with the various training schools for medical/nursing personnel. They would assist in recruitment and support of personnel in training. They would develop educational media and promote their use. They would be responsible for developing the licensure requirements for the various medical personnel. They would have a budget for activities carried out but it is recommended that the major budgets for training of personnel and the authority for posting and transfer of personnel remain with the division responsible for the employment of the individual. The staff of this division would include two officers and two secretaries in addition to the head of the division.

C. Medical Practitioners

1. Community Health Workers

The lowest level of medical practitioner is that of a community health worker. These persons may be school teachers, clergy, community leaders, policemen, traditional healers or traditional birth attendants, etc. who have had limited training. They may be thought of as "first aiders" or "health promoters" who will render limited medical care and refer to the health center for treatment by the medical assistant.

They would provide the simplest of curative medical care and would emphasize promotive and preventive care. They would have sufficient emergency medical skills to stabilize a patient long enough to accompany him to the main health clinic on the atoll to the care of the medical assistant. They might work out of a small clinic if such is available but such a facility is not a requirement as they may also work out of a room in a school or a cupboard in a home.

The Community Health Worker is under the constant supervision of the medical assistant at the health center on the atoll. He would have daily radio contact with the medical assistant via intralagoon radio and means of referral or transportation of patients to the medical assistant via intralagoon boat transportation. It is recommended that there be a

community health worker for every inhabited island and for those islands with larger numbers of people that there be one worker for approximately every 50-75 inhabitants living in the area surrounding the community health worker.

Their training would primarily be that of "on-the-job training" usually with a one month course of instruction at the beginning of their career followed by ongoing continuing education given by the medical assistant along with his supervisory role such that they eventually have the equivalent of approximately six months of training. Selected well-qualified community health workers should receive sufficient training to be eligible to become health assistants.

2. Health Assistant

At present primary care is delivered on the outer islands by about 55 health assistants, the majority of which were trained after World War II by Navy corpmen in a short (6 to 9 month) emergency medical course in Majuro. Many of them are elderly and approaching retirement. Their educational level is low, averaging 3-5 years of elementary schooling, and their perceived role is limited almost exclusively to "clinical" medicine. In recent years some additional health assistants were trained through the public health division on Majuro. These health assistants are younger, have a secondary school education and will probably stay in the system much longer. Their course of training was approximately 9 months also. All of the health assistants work in the small clinics on the islands and see very few patients.

Health assistants are able to provide more primary care services than that of a community health worker but still must rely heavily on the support and consultation of medical assistants who supervise them. They will utilize more medications in treatment because of a greater ability to diagnose the simple and common health problems. Many of them are able to care for minor wounds including suturing, conduct obstetric deliveries and care for minor orthopedic injuries as well as carry out the preventive services such as immunizations, health education, well child care, antenatal and post partum care, family planning services, and the prevention, detection, and treatment of malnutrition.

The supervision of the health assistant is the same as that of the community health worker with whom they have daily intralagoon radio

contact. They also have need of interisland boat transport for referral when necessary. They usually work out of one of the existing clinics on the islands although these clinics need not be elaborate or extensively equipped.

The health assistants on the Marshall Islands have been fortunate to have an active continuing education program offered by Mr. Arata Nathan from Ebeye and Mr. Alex Keju from Majuro. It is recommended that these MEDEX continue in their work of continuing education. Qualified health assistants after a period of work with good recommendations may become candidates for training in the medical assistant course. Approximately 10 of the younger health assistants are presently qualified to be upgraded to medical assistants.

3. Medical Assistants

A mid level practitioner functions between the level of a health assistant or community health worker and that of a medical officer or medical doctor. He works under different titles based on the name given by the particular school under which he was trained.

Between 1975-1978 a few Medex were trained by the University of Hawaii as part of a Trust Territory Pacific Island-wide medical training program. Medex are mid level pratitioners who have had two years of training beyond high school. Today there are 10-12 Medex who are working in the Marshalls, most at the central facilities at Majuro and Ebeye as physician extenders, supervisors of special programs i.e. hypertension, and in the public health clinics at the hospital. They were trained specifically to work in the outer islands under the supervision of Medical Officers by radio but this plan has not been realized because of multiple factors. Those who are working seem to be highly competent and motivated though somewhat discouraged because of lack of support.

A training program of similar level is ongoing at present in the School of Medicine at the University of the South Pacific in Suva, Fiji, where they are called Medical Assistants. A proposed program of training offered by the new campus of the University of the South Pacific in Honiara, Solomon Islands has chosen the name of Health Extension Practitioners. For the sake of clarity the name of medical assistant will be used here as this is a commonly used designation in many countries of the world.

The medical assistant is qualified to care for most primary health care needs, including the more difficult situations that the health assistants and community health workers refer to him. A vital part of his work is to provide supervision and continuing on-the-job education for the health assistants in his atoll. The medical assistant is to be a full time and fully occupied employee who would have daily contacts with each of the health assistants in his atoll and also daily radio contact with the medical officer or medical doctor at the hospital of his area. Such radio contact would provide consultation for the management of difficult cases, continuing education of the medical assistant, supervision of the work of the medical assistant along with a verification that he is on duty on a daily basis. Daily radio contact also provides a means of determination of need for and authorization of routine transport or emergency evacuation for hospitalization for any patient needing such care. This prevents unauthorized transports or evacuations and over utlilization of hospital services by placing the final authority for transportation in the hands of the medical officers at the hospital.

Medical assistants are also utilized to run the outpatient units of the hospitals with consultation as needed by the medical officers or medical doctors.

The training of the medical assistant usually includes an entry requirement of completion of high school followed by one year of basic science instruction and two years of practical clinical instruction in hospitals and field clinics. The recommended site of such training is at the new campus of the University of the South Pacific which is being established at the present time in Honiara, Solomon Islands with the goal of providing mid level training in the areas of medical care, education, and engineering. Alternative training site is the medical assistant program at the School of Medicine in Suva, Fiji. Another alternative is to reinitiate the "medex" training or develop a similar training program in the Marshall Islands. The cost effectiveness advantages/disadvantages of this must be weighed against sending students to already existing training programs sponsored by member countries of the South Pacific Region that have experience and knowledge of specific health needs of the South Pacific Islands.

Another potential site for the training of medical assistants is that of Papua, New Guinea where there is a training program that is reported to place a greater emphasis on the practical aspects of mid level medical care as compared to the program at the University of the South Pacific that may emphasize the academic aspects a little more.

On each atoll the clinic nearest the large population center and nearest the airport would be upgraded to a health center. This would be the site of the major part of the primary care rendered outside the two hopsitals. In some atolls with a large distance between islands or a long island separating major population densities it will be necessary to set up two health centers, each one staffed with a qualified medical assistant. To staff each of these health centers with a medical assistant and to have medical assistants to run the outpatient departments of the two hospitals will require approximately 35 medical assistants. It is recommended that approximately 10 medical assistants begin their three year training each year for the next three years and following that a continuing requirement would be for 3-5 to begin training each year.

It is recommended that one full-time medical assistant be located on each of the following atolls or islands: Ebon, Jaliut, Kili, Namorick, Mili, Arno, Laura (on Majuro atoll), Ailinglapalap, Maloelap, Aur, Nami, Wotje, Mejut, Ailuk, Likiep, Ebadon (on Kwajalein atoll), Ujae, Utirik, Rongelap, Enewetak, and Ujelang for a total of 21 Medical Assistants. The extremely small population group on some atolls and islands do not seem to warrant a full-time medical assistant. In these cases continued use of a health assistant is recommended. These would include:

Lae,
Lib,
and Wotho.

The following atolls/islands are at present uninhabited and would not require a health facility:

Jemo	Knos
Erikub	Taka
Bikini	Rongeub
Bikar	

4. Medical Officers and Medical Doctors

Medical Officers and Medical Doctors provide the consultation for outpatient services at the hospital as well as the inpatient care of the medical and surgical patients. The recommended minimum for each hospital at Majuro and Ebeye is one general surgeon with one or more general practitioners. As soon as the work load demands and staffing permits the minimum recommendation would provide one surgeon, one internist, one pediatrician, one obstetrician/gynecologist and one or more general practitioners. Such a level of staffing would allow one doctor to do itinerate service for consultation and continuing education of the medical assistants on a scheduled visiting basis to each atoll. Complicated medical and surgical cases requiring more skilled care or highly specialized services would be referred to Hawaii, Guam or mainland U.S.A. for tertiary medical care. Such situations would be few and infrequent.

The supervision of medical officers and medical doctors is done by the medical director in charge of hospital services and by formalized scheduled peer-review conferences. A degree of supervision and continuing education is provided in the form of consultations and referrals for tertiary care when required.

The training of medical officers is recommended to be at the School of Medicine of the University of the South Pacific in Suva, Fiji. Several medical officers in the Marshalls have been trained at this school but currently there are no candidates in training. It is strongly recommended that selected candidates be sought and enrolled as soon as possible. The current program has entry requirements of completion of high school and passing the University Entrance examinations. The program is five years, with the first year being basic science studies on the main campus of the University of the South Pacific and the remaining four years at the School of Medicine. Of the final four years, the first is preclinical basic science followed by three years of clinical study and experience in medical/surgical areas. Study is currently being undertaken to expand the training program to seven years which would result in a fully qualified medical doctor with the M.D. degree.

5. Medical Doctors - generalists and specialists

Until such time as Marshallese personnel can be trained to the medical officer or medical doctor level in sufficient numbers to staff the two hospitals it will be necessary to provide such staffing with expatriate personnel. This will be required for approximately 10 to 15 years as there are few practicing Marshallese medical officers at present and none in training in Fiji. It is understood that there is one doctor in residency training in Guam at present.

D. Dental

As stated previously in this document the three dental officers and their supporting staff are working in Majuro and primarily serving the population of that Island. There is need to expand the dental manpower so that when appropriate support services can be developed i.e. reliable transportation there will be an opportunity to provide dental services to the population living outside Majuro. Services need to be provided to all of the atolls. As in medical practice there are various levels of dental practice with many functions appropriately provided by personnel who have less training than that of a fully qualified dentist or Doctor of Dental Surgery. The Dental Nurses can provide much of the service that is needed in the outer islands, including extractions and education on proper oral hygiene. They would also supervise the flouride mouth worker, and the dental nurse assistants.

It is recommended that the dental manpower staffing be increased in order to provide the services needed to outer islands as well as in Majuro and Ebeye. The area of dental manpower requirements needs additional study and evaluation; however, with only the preliminary data at present the following staffing levels are recommended. There should be one fully qualified dentist (Doctor of Dental Surgery), an expatriate, stationed at Majuro. There is need for three dental officers in Majuro and one at Ebeye. Five dental nurses are recommended for Majuro and four for Ebeye with six dental nurse assistants for Majuro and four dental nurse assistants for Ebeye. The dental officers and dentist would require two dental laboratory technicians at Majuro.

The recommended site of training for the dental officers and assistants is at the School of Medicine of the University of the South Pacific in Suva, Fiji. It is anticipated that mid level dental practitioner training schools

will also be established at the new campus of the University of The South Pacific in Honiara, Solomon Islands and would then become the recommended site for such training. The appropriate site of training needs additional evaluation along with a more extensive survey of dental manpower needs.

E. Nursing

1. Nursing assistants

Nurse aids assist the practical nurses and graduate nurses in routine care of hospital in-patients as well as with traffic flow and routine duties in the out-patient department. They can assist with bed making, bathing of patients, collection of and transport of laboratory specimens and similar duties that do not require the skill of graduate nurses. They are supervised by the graduate nurses in charge of the ward or clinic during that shift.

Their training is on the job training given by the instructors of the nursing school or more frequently by the administrative nurse in charge of nursing service at the hospital.

2. Practical Nurses

Practical nurses are able to perform the more complicated routine nursing procedures and work in specialized clinics or special care hospital wards.

They are supervised by the graduate nurse in charge of the ward or clinic or the administrative nursing personnel of the hospital.

Their training is in a six month formal training course for practical nurses. This training can be obtained through the extension courses of the College of Micronesia which at present would be negotiated through Mr. Alfred Capella, the extension service coordinator, located in Majuro.

3. Graduate nurses

Graduate nurses serve in two capacities, either as supervisory personnel or as staff nurses. The term staff nurse distinguishes them from practical nurses. Graduate nurses work in the outpatient and emergency sections to screen patients, take vital signs, assist during examinations, change dressings, give injections, prepare wounds for minor surgery, incise and drain abscesses, suture small lacerations, prepare admitting papers for patients to be admitted and make home visits. Inpatient nursing consists of standard hospital nursing

services including the administering of medications and carrying out of doctors orders, provision of bedside care, assistance to incapacitated patients, monitoring of critical patients, reporting of symptoms and reactions of medications to physicians, monitoring of surgical patients after surgery, assistance at childbirth and delivery of infants, care of the newborn and care of mental patients.

These services are organized around the wards: medical, surgical, obstetrical, pediatric and mental. Graduate nurses are responsible for administrative paperwork including maintenance of patients charts and processing admission and discharge of patients. They also assist in interpreting treatment regimes to the patient and family and in providing health education to patients and families. They are also in charge of the supervision of practical nurses and nurse aides.

The supervision of graduate nurses is under the direction of the administrative director of nurses who will then designate a graduate nurse to be in charge of the ward or clinic for each shift to supervise all nursing services for that particular shift. At the present time there is an expatriate director of nurses, on Majuro, with all of the graduate nurses being Marshallese.

Graduate nurses can be trained at multiple sites. The most common site is that of the College of Micronesia. Entry requirements are to complete high school. The first year of nurse training is at the College of Micronesia in Ponape where they take physiology, microbiology and anatomy. The students then transfer to the School of Nursing of the College of Micronesia which is located in Saipan for their second and third years of clinical nursing. A well developed curriculum with specific behavior objectives is followed and incorporated with the LEGS system (Learning Experience Guides for Nursing Students by Anne K. Roe/Mary C. Sherwood, published by John Wiley & Sons, Inc.). A copy of the curriculum was obtained and is on file at Loma Linda University. The nursing school is connected with an approximate 100 bed hospital. There is a good library with textbooks, several nursing journals, and many self-help audiovisual instructional guides.

At the October 5-8, 1980 meeting of the Board of Regents of the College of Micronesia it was voted to move the School of Nursing to Majuro pending the acquisition of land for a school site. This should be a distinct advantage for the training of nursing personnel for the

Marshall Islands. At the present time the nurses receive their first year of training in basic science at the College of Micronesia in Ponape with the following two years of clinical training at the School of Nursing in Saipan. Consideration should be given to providing financial support for the voted move of the School of Nursing to Majuro - pending the acquisition of land. Until such developments take place the nurses can be trained at Ponape/Saipan or an alternative site would be the School of Nursing of the University of the South Pacific located at Suva, Fiji. Entry requirements there are to complete Form 5 and pass college entry examinations in three subjects. Since approximately 2000 students apply each year with approximately 80 acceptances, by practice most students accepted are Form 6 graduates. Two additional alternate sites are those of the training school in Papua, New Guinea and the new school being established in Honiara, Solomon Islands.

4. Bachelor Degree Level Nurse (R.N.)

At the present time there are few if any bachelor degree level nurses in the Marshall Islands. It does not appear that there is a great need for such at the present time except for the expatriate personnel. As time goes on some of the graduate nurses could be selected for advanced training in specialized areas such as nurse anesthesia, midwifery, public health, pediatric and neonatal care, surgical. critical care, etc.

5. Advanced Nursing Personnel

Selected outstanding candidates can be chosen for advanced nursing training which may or may not lead to the Bachelor degree level. Administrative nurses could be trained at a number of sites and would probably achieve a bachelor's or even master's degree. The same would apply for those in nursing education. There are advanced programs for graduate nurses in the specialty areas of public health and midwifery at the School of Nursing in Suva, Fiji. The year of public health training provides six months of emphasis on primary care in addition to public health training, as the public health nurses often provide the primary care in remote areas that are not served by a medical assistant or medical officer. Every graduate nurse completing training in Fiji must also serve a one year supervised internship with four months of public health, four months of hospital nursing and four months of obstetrical nursing.

F. Public Health

After considerable study and evaluation it has been determined that the best plan for the Marshall Islands is to integrate the preventive aspects of public health with that of the primary care workers. An exception to this general policy might be to train a few graduate nurses in the special program offered by the School of Nursing of the University of the South Pacific at Suva, Fiji as mentioned in the preceeding paragraph.

The Division of Public Health would be headed by an expatriate public health professional who would have as his counterpart a medical officer with public health training. His staff would have seven specialists who would be medical assistants or graduate nurses who have received additional training in public health. The function of these persons would include the following: health education, maternal and child health, communicable diseases, chronic diseases, environmental health, nutrition, mental health. In addition to these specialists there would be two sanitarians and four secretaries.

G. Ancillary Medical Personnel

Ancillary medical personnel such as laboratory technicians, x-ray technicians, pharmacists, occupational therapists/physical therapists, respiratory therapists and nurse anesthestists have been discussed in other sections, primarily that of secondary care, as most of their services are needed in the hospitals.

The recommended numbers of such personnel are as follows:

X-ray technologist - 1 expatriate at Majuro
X-ray technicians - 2 at Majuro and 1 at Ebeye
X-ray technician assistants - 2 at Majuro and 1 at Ebeye
Clinical Laboratory Technologists - 1 expatriate at Majuro and 1 expatriate at Ebeye
Clinical Laboratory Technologists - 2 nationals at Majuro
Clinical Laboratory Technicians - 5 at Majuro and 1 at Ebeye
Clinical Laboratory Assistant - 1 at Ebeye
Pharmacy Technicians - 2 at Majuro and 1 at Ebeye
Pharmacist Assistant - 2 at Majuro and 1 at Ebeye
Physical Therapist - 1 at Majuro
Physical Therapist Assistant - 1 at Majuro
Mental Health Counselor - 1 at Majuro and 1 at Ebeye
Hemodialysis-Nurse Technicians - 1 expatriate at Majuro and 3 nationals at Majuro
Respiratory Therapist/Nurse Anesthetists - 2 at Majuro and 1 at Ebeye
Medical Records Supervisors - 1 at Majuro and 1 at Ebeye

Medical Records Technicians - 1 at Majuro and 1 at Ebeye
Medical Records Clerks - 3 at Majuro and 1 at Ebeye

There are training sites for some of these personnel at the University of the South Pacific and the College of Micronesia. Since the numbers of personnel needed in each area are so few, it does not warrant conducting special training schools in the Marshall Islands other than that of on-the-job training. Each need must be individually evaluated for the proper training site and fulfilled with an appropriate participant manpower training program.

SUMMARY OF HEALTH MANPOWER RECOMMENDATIONS

1. Establish scheme of service ladder for upgrading personnel in medical and nursing cadres.
2. Improve health manpower administrative structure and develop incentives for recruitment of health personnel and improvement of morale.
3. Emphasize and support health care on the outer islands by creation of five divisions: 1) Primary Care/Public Health, 2) Secondary Care, 3) Support Services, 4) Planning and Evaluation, 5) Manpower Training.
4. Select and train one community health worker for approximately every 50-75 persons on the outer islands, and upgrade qualified candidates to health assistants.
5. Assign one medical assistant to every atoll, in each health center.
6. Begin the training of 10 medical assistants every year for the next three years and 3-5 every year thereafter. The training to be at the School of Medicine in Suva, Fiji until the school is established at Honiara, Solomon Islands.
7. Immediately select and begin the training of one or more qualified candidates for medical officer or medical doctor training at the School of Medicine in Suva, Fiji and continue to enroll two candidates per year for the foreseeable future.
8. Select appropriate candidates and begin the training of approximately 3-5 nurses for graduate nurse training each year at the School of Nursing of the College of Micronesia in Ponape and Saaipan.
9. Give consideration to providing financial assistance for the move of the School of Nursing of the College of Micronesia from Saipan to Majuro, Marshall Islands.
10. Request the training of practical nurses as needed through the extension division of the College of Micronesia with the training to be provided in Majuro.

11. Select appropriate candidates from the graduate nurses for advanced training in nursing in the areas of midwifery, public health, mental health, nursing education, nursing administration, nurse anesthesia, critical care, surgical specialty, pediatric and neonatal specialty, etc. and send to individually selected sites for appropriate participant training.
12. For every expatriate serving in health care select a Marshallese counterpart to work with the expatriate for experience and training and select an additional candidate for participant training in that area of expertise to be trained abroad at individually selected appropriate educational institutions.

SUMMARY OF HEALTH MANPOWER REQUIREMENTS

This summary of manpower requirements is based on the recommended numbers of personnel to fully staff a comprehensive medical care program for the entire Marshall Islands population. It takes into consideration the numbers needed according to the recommendations made in this report. In a few instances it may not correlate with the proposed first year budget because of personnel not yet available or in training.

E = Expatriate

	Proposed
I. PRIMARY CARE AND PUBLIC HEALTH	
A. Director of Primary Care/Public Health - Public Health Physician	1 (E)
1. Medical Officer	1
2. Public Health Nurse - M.P.H. Degree Level	1 (E)
3. Health Educator Nutrition - M.P.H. Degree Level	1 (E)
4. Sanitary Engineer	1 (E)
5. Sanitary Engineer - Marshallese	1
6. Master of Public Health/Medical Assistants	7
7. Medex/Medical Assistants	35
8. Health Assistants	53
9. Community Health Workers	200
10. Clerks	4

	Majuro		Ebeye	
	Current	Proposed	Current	Proposed
II. SECONDARY CARE (HOSPITALS)				
A. Administrative Services				
1. Medical Director - Physician	0	1 (E)	0	1 (E)
2. Administrator	1	1 (E)	1	1 (E)
3. Administrative Assistant	0	1	0	0
4. Accountant	0	1	0	1
5. Secretarial	0	2	0	1
6. Cashier	0	1	0	1

	Majuro		Eb	
	Current	Proposed	Current	Proposed
B. Clinical Services				
1. Medical				
a. Physicans/Surgeons, not including Medical Directors		4 (E)		1 (E)
b. Medical Officers		5		2
2. Emergency Room				
a. Medical Assistants	1	1	1	1
b. Health Assistants	0	2	0	1
3. Optometry				
a. Optometrist	0	1 (E)	0	0
4. Dental				
a. Dentist (DDS)	0	1 (E)	0	0
b. Dental Officer	3	3	0	1
c. Dental Nurses	0	4	0	4
i. Dental Nurse Assistants	0	4	0	4
d. Dental Laboratory Technicians	0	2	0	0
e. Dental Nurse for Field Operation	0	1	0	0
f. Dental Nurse Assistant for Field Operation	0	2	0	0
5. Nursing				
a. Director of Nurses/Chief Nurse (BA)	1	1 (E)	1	1 (E)
b. Nursing Supervisors	4	4	0	1
c. Head Nurses	7	24	4	6
d. Health Assistants/Practical Nurses	24	60	10	20
e. Ward Clerks/Ward Secretary	0	3	0	1

	Majuro		Ebeye	
	Current	Proposed	Current	Proposed
h. Medical Records				
i. Medical Records Supervisor	0	1	0	1
ii. Medical Records Rechnician	1	1	1	1
iii. Medical Records Clerks	3	3	1	1
C. Ancillary Support Services				
1. Laundry				
a. Laundry Supervisor	0	1	0	1
b. Laundry Assistant (Helpers)	0	3	0	2
2. Housekeeping				
a. Housekeeping Executive	0	1	0	1
b. Assistant Housekeeper	0	1	0	0
c. General Housekeeping	2	6	1	3
3. Dietary				
a. Dietician	0	1	0	0
b. Dietetic Assistant	0	0	0	1
c. Chef	1	1	0	1
d. Kitchen Helpers	6	7	1	2
4. Ambulance	0	1	1	0
5. Secuirty Guards	2	2	0	2
6. Grounds and Maintenance				
Included Under SUPPORT SERVICES Division				

	Majuro		Ebe	
	Current	Proposed	Current	Proposed
6. Ancillary Clinical Services				
a. X-ray Department				
i. X-ray Technologist	0	1 (E)	0	0
ii. X-ray Technicians	2	2	1	1
iii. X-ray Technician Assistants	2	2	1	1
b. Clinical Laboratory Department				
i. Clinical Laboratory Technologists	0	1 (E)	0	1
ii. Clinical Laboratory Technologists - Marshallese		2		
iii. Clinical Laboratory Technicians	7	5	1	1
iv. Clinical Laboratory Assistants	0	0	1	1
c. Pharmacy				
i. Pharmacy Technician	2	2	0	1
ii. Pharmacist Assistant	0	2	1	1
d. Physical Therapy				
i. Physical Therapist	1	1	0	0
ii. Physical Therapist Assistant	0	1	0	0
e. Mental Health				
i. Mental Health Counselor	0	1	1	1
f. Hemodialysis				
i. Hemodialysis/Nurse Technician	4	1 (E)	0	0
ii. Hemodialysis/Nurse Technician - Marshallese	0	3	0	0
g. Inhalation Therapist/Nurse Anesthetist	0	2	0	1

		Proposed
III.	SUPPORT SERVICES	
	A. Director of Support Services	1 (E)
	B. Support Services Personnel	
	1. Maintenance Officer	1 (E)
	2. Transportation and Communication Officer	1 (E)
	3. Supplies Inventory Officer	1 (E)
	4. Pharmacist	1 (E)
	5.	
	6. Maintenance Workmen	10
	7. Secretaries	4
IV.	PLANNING/EVALUATION	
	A. Director of Planning/Evaluation	1 (E)
	B. Statistician/Epidemiologist	1 (E)
	C. Other Personnel	
	1. Vital Statistics Officer	1
	2. Clerks	2
	3. Secretary	1
V.	MANPOWER TRAINING	
	A. Director of Manpower Training	1 (E)
	1. Officers	2
	2. Secretaries	2

TOTAL EXPATRIATE Personnel Required = 28

TOTAL MARSHALLESE Personnel Required = 564

X. Planning and Evaluation Services

A. Present Status

The present Vital Statistics Office is housed in the Medical Records Section of the Majuro Hospital. There are only two employees. The office is in charge of collecting all birth, death, fetal death, and health services utilization data in the Marshall Islands. (Examples of the forms used at present are in Appendix N). The office sends out forms to the health aides (who are supposed to register births and deaths) and picks them up periodically when "field ships" make the tour of the islands. The health aides fill in the needed data in handwriting on the forms, either in English or Marshallese, and then send them back to the main office where a final original birth or death form is typed out from the rough handwritten one. Generally the health assistant lists only signs and symptoms for "cause of death" on their form. A medical officer in Majuro interprets the signs and symptoms and attributes a "cause of death" (cause of death is seldom determined by autopsy). After an "original" death or birth certificate is typed out copies are sent to the courthouse and until recently to Saipan where all tabulations and analysis of data has been done. Unfortunately, many vital events (particularly deaths) go unreported, and many forms are lost in transit from the outer islands to the central office.

Basic health utilization data comes from the "sick call" forms filled out by the health assistants (see Worksheet for Sick Call forms and the Monthly Dispensary Reports in Appendix). Unfortunately, not much information is availale from these forms and many of them get lost as well. Immunization data is recorded on a patient-retained card (usually held by the mother of the child). Recently the staff in Majuro have introduced in the outer island clinics the use of a larger more complete personal/family medical form (see example in Appendix N). Not all clinics are using it yet, furthermore accuracy and completeness varies considerably among the health assistants. This latter form remains at the clinic and is not sent in like the sick call form. Initially it was hoped the health supervisory personnel traveling on the "field ship" tours would retrieve relevant health data from the clinic based form. Unfortunately, tours to the outer islands have been very sporadic and usually the short time spent on each atoll is used up conducting immunization clinics and other activities, leaving little or no time to evaluate or retrieve data from the clinic records. (The Majuro Hospital medical record system is discussed under a separate section).

To summarize, the present vital and health service data collection sytem in Majuro has been functioning primarily as a clerical service for the Trust Territory offices based in Saipan. Its staffing (two people) and the level of training of the personnel mitigate doing more than clerical work. The problems resulting are many: quality and accuracy of data are low, particularly that gathered by the health assistants. Sporadic and inefficient mail and transport services has led to a high occurrence of lost forms and missing data. Many deaths are not recorded (particularly of old people on the outer islands). Data on cause of death and health service utilization by cause is also unreliable or missing. Birth registration data is complicated by a common local custom of people changing their first names several times during their lifetimes (this is more common during childhood years). As a result, one person may have several records on himself all under different names.

Utilization of the health service data collected as feedback into the health system for management or health status evaluation purposes is all but non-existent. Now that the Marshall Islands are becoming a Freely Associated State, the Saipan connection is being phased out, leaving the analysis/planning/evaluation function without a designated home. The Marshallese Health Services is the logical one to pick it up but it lacks the personnel with appropriate expertise. Thus, a very critical breakdown in the ability of the health system to monitor change and plan for the future is occurring.

B. Recommendations

The Secretary of Health Services and the head of the Vital Statistics Office on Majuro believe that the development of an inhouse planning/evaluation capability must be established soon on Majuro. It must be able to assume the role previously performed by the TT Health Systems Agency in Saipan. The medical and other vital statistics forms designed by TT are quite good and probably will suffice for now (some revision or addition of items to the forms is all that is needed). What is more serious is the transport, communications, and supervisory breakdowns which have caused the system as originally designed to not meet its objectives of providing timely and accurate data upon which to measure change.

1. Administrative

It is recommended that the Planning/Evaluation Unit assume the role now performed by Saipan of preparing five-year health plans and annual implementation plans. There is a general dislike by the Marshallese for plans developed by

outside agencies which they do not have much control over (as has been the case with the Trust Territory Health Services Administration in the past). Thus, it is recommended that the proposed planning unit be administratively tied directly to the Ministry of Health Services and that it work closely with the Nitijela, the Health Coordinating Council (it if remains functional), and the Secretary of Health Services (see Organization Chart, Section IV A). As noted in the Organization Chart, the Planning/Evaluation Unit will be on the same level as the other main divisions. This will assume it has both the independence and clout needed to fulfill its role.

It should be stressed that the planners (if expatriate) must be willing to adapt their planning methodologies to the traditional political system found in the M.I. Complicated Health Services Administration-type planning methodologies as used in the U.S. are not approriate here. The planners must have experience in health planning for developing countries and the support and backup by consultants of various categories will be needed, i.e. social scientists, survey statisticians and epidemiologists.

2. Manpower

There is not available locally personnel who have the statistical, planning, and epidemiological expertise needed to adequately supervise the system. It is recommended that for at least five years a full-time expatriate planner/evaluator and a statistician/epidemiologist be hired. As soon as possible, promising Marshallese should be sent for advanced training in statistics and planning so that the expatriates can be phased out.

There is also need for an expatriate hospital medical records technician to assist in revamping that system. This person could also assist in the planning/evaluation unit particularly in the design and upkeep of the clinic-based patient record keeping system.

3. Vital Statistics Gathering

It is recommended that this unit make as its first priority the testing of other alternatives to the existing vital statistics and medical record system i.e. a patient-retained record system. The latter would be to counteract the double problems of a highly mobile population and the custom of frequent name changes. The possible utilization of the radio for selective data gatering should also be tested. In addition the design of a planned schedule of periodic sample surveys to assess program effectiveness needs to be done.

Another high priority in the data gathering/statistics area should be the implementation of a Marshall Islands Population Health Needs Assessment Survey. This should be done to establish a baseline of data on knowledge, attitudes and practice in the health area for use in monitoring and evaluating whatever programs are implemeted as a result of P.L. 96-205.

This initial health assessment survey should be but the first in a regularly planned sequence of sample surveys to assess change in the health service system and the health status of the population. Carefully designed sample surveys will probably for the foreseeable future be the best source of data available in the Marshalls. It is also recommended that a major evaluation be conducted five years after implementation to measure change in health status and to make revisions in the health care system. This evaluation shyould involve several types of scientists: sociologists/anthropologists, health planners, ecologists, and epidemiologists.

Data processing of all statistical data collected should probably in the near future be hand tabulated, even though purchase of a computer is being considered. This is recommended primarily because clerical labor is not in short supply and is relatively inexpensive. Furthermore the required technical expertise to make a computerized system work effectively is not present. If nothing else a hand-sorted data system should be maintained as a back-up. The use of a small desk-top computer for analysis of data might be utilized.

4. Evaluation in Manpower Training

It is recommended that the Planning/Evaluation Unit work very closely with the continuing education/manpower training personnel in designing instruments for evaluating and assessing the skill levels of the health aides in the outer island clinics. Present transportation and communication problems have meant very little assessment of skill level or health worker attitudes and acceptance has been done. Furthermore, vital statistical data is processed so slowly it has marginal use as a monitoring tool for management or administrative purposes.

Two budget items require special comment, training and new construction. A major concern throughout the development of the program has been providing for the training of individuals so the Marshall Islands in time can use more and more of their own people. For this reason it may appear to be an over-budgeted item but in part is cost effective and culturally desirable.

The other item, construction, is a result of the fact that from a practical point of view, housing is going to have to be provided to the Medical Assistant/Health Assistant on the atolls. There is little available housing and in one instance they had to leave an atoll because of this. It becomes a major budget item in years two thru five as this represents the timing for individuals coming off training programs.

C. Secondary/Tertiary Care

As with any health delivery system, costs for this level of care are the highest single component of the system. Contributing to the cost are the short useful life of equipment and maintenance costs because of the hostile environment (climate). It is anticipated that with improved maintenance the average useful life of most equipment will be three to four years.

As discussed in the previous section, training and upgrading of personnel is something that must be included early in the program.

We have not budgeted for any major renovation of the Majuro Hospital, as it appears that a new one will be built. Since it seems to be beyond the scope of this study and there are funds already available for this new hospital, it was not included in this budget. Should plans change and a new hospital not be built, this could be a major addition to the cost of the health care delivery system.

XI. Proposed Budget

A. Administrative

Administrative responsibility for the budget will be with the Financial Intermediary/Program Implementor (FIPI). This entity will be responsible for providing whatever reporting and control is required by the U. S. Government. It is not anticipated that FIPI will be accountable for that portion of funding provided by the Marshall Islands. In addition to monitoring and reporting on how U. S. funds are spent, it is suggested that the FIPI be responsible for the development of budgets and future U. S. funding requirements for health care in the Marshall Islands.

The budget which follows represents an estimate of total costs for the indicated year. No attempt has been made to identify the U. S. portion and the Marshall Islands portion. For example, for FY 1980 the Marshall Islands health care budget is approximately three million. The recommended budget is close to eleven million dollars. In theory the amount to be provided under 96-205 in year one would be about eight million dollars. It is beyond the scope of this study to recommend what the participation of the Marshall Islands should be in funding this share of the health care costs. Since this is something to be worked out by the two governments, it was decided to develop a total cost budget with the level of funding to be determined by the two governments at a later date.

B. Primary Care/Public Health

As might be expected, supplies, equipment and personnel costs represent the major budget items. Although the population is only thirty thousand, there are twenty-six atolls with populations requiring primary care. Because of the obvious transportation and communication problems presented in the Marshall Islands, this level of care is more costly than would be found for the same population with a different geography.

D. Support Services

The establishment of this division represents a major departure from the existing system. To some extent this activity has been performed by the Trust Territory. Although their operating budget is under four hundred thousand dollars, the division will be responsible for supplying/providing nearly half the budget items in dollar terms (supplies, equipment, maintenance, communication, and transportation). As mentioned in earlier discussions, this division is critical to a successful health delivery system.

E. Planning and Evaluation Services

This division is assuming many of the services provided by the Trust Territory in the past. Although the smallest in terms of budget, its function is vital for the successful implementation of the health care system over the years ahead. The major budget items are compensating qualified personnel and the training of personnel for future needs.

F. The major budget item for this division is for scholarships to educate selected Marshallese to assume increasing responsibility for the delivery of health care in the future. This particular function has not been performed in the past. Because of this, manpower training is an important element in the future success of health care in the Marshall Islands. In addition to the activity of this division, each of the other divisions also have budgeted scholarship funds for the training and upgrading of existing staff.

MARSHALL ISLANDS HEALTH CARE BUDGET

(Dollars in Thousands)
Years 1-5

	Primary & Public Health	Secondary/ Tertiary	Support Services	Planning and Evaluation	Manpower	Line Item Totals Year 1	Line Item Totals Year 2	Line Item Totals Year 3	Line Item Totals Year 4	Line Item Totals Year 5
Overhead	21.0	67.0	3.0	2.0	3.0	96.0	115.2	138.2	165.9	199.1
Training										
Contractor Services	50.0	100.0	50.0	25.0	25.0	250.0	300.0	360.0	432.0	518.4
Scholarship	50.0	200.0	20.0	10.0	250.0	530.0	636.0	763.2	915.84	1099.0
Supplies										
Medical	500.0	1800.0	-0-	-0-	-0-	2300.0	2760.0	3312.0	3974.4	4769.3
Other	200.0	150.0	10.0	10.0	10.0	380.0	456.0	547.2	656.6	788.0
Equipment										
Medical	300.0	1125.0	-0-	-0-	-0-	1425.0	855.0	1026.0	1625.2	1950.2
Other	150.0	150.0	25.0	30.0	10.0	365.0	145.7	174.9	267.5	320.9
Personnel Cost										
Physician/Dental Exp. (US)	75.0	600.0	-0-	-0-	-0-	675.0	810.0	972.0	1166.4	1399.7
" " (Marshall)	26.0	180.0	-0-	-0-	-0-	206.0	247.2	296.6	356.0	427.2
" " (Other)	-0-	80.0	-0-	-0-	-0-	80.0	96.0	115.2	138.2	165.9
Medical Support Exp. (US)	30.0	251.0	-0-	-0-	-0-	281.0	337.2	404.6	485.6	582.7
" " (Marshall)	422.0	790.0	-0-	-0-	-0-	1212.0	1454.4	1745.3	2094.3	2513.2
" " (Other)	96.0	209.0	-0-	-0-	-0-	305.0	366.0	439.2	527.0	632.4
Other Exp. (US)	-0-	-0-	140.0	89.0	30.0	259.0	310.8	373.0	447.6	537.1
" (Marshall)	14.0	113.0	56.0	15.0	6.0	204.0	244.8	293.8	352.5	423.0
" (Other)	-0-	28.0	-0-	-0-	14.0	42.0	50.4	60.5	72.6	87.1
Transportation Incl. Per Diem										
Medical	100.0	400.0	-0-	-0-	-0-	500.0	600.0	720.0	864.0	1036.8
Recruiting	10.0	50.0	25.0	25.0	10.0	120.0	144.0	172.8	207.4	248.8
Other	20.0	60.0	15.0	30.0	15.0	140.0	168.0	201.6	241.9	290.3
Communication	1.0	1.0	6.0	1.0	1.0	10.0	12.0	14.4	17.3	20.7
New Construction	75.0	-0-	-0-	-0-	-0-	75.0	250.0	600.0	600.0	100.0
Maintenance										
Building	100.0	250.0	-0-	-0-	-0-	350.0	420.0	504.0	604.8	725.8
Equipment	266.4	815.8	8.0	10.0	3.0	1103.2	1324.7	1589.6	1907.5	2289.0
Totals	2506.4	7419.8	358.0	247.0	377.0	10908.2	12103.3	14824.1	18120.5	21124.5

XII. Four Atoll Proposal - Issues and Alternatives

A. Introduction

Both the Department of Energy historically, and the Burton Bill more recently, have identified the people of Bikini, Enewetok, Rongelap and Utirik as having the most direct radiation effects. Those individuals actually included were decided by various factors, primarily their location during the nuclear testing activities. Not surprisingly there are many anecdotal challenges to the established list of affected individuals which will probably continue to be claimed throughout this and perhaps even succeeding generations.

It is increasingly evident that the actual health impact of radiation on even the most directly affected is minimal. This not only further complicates any attempt to distinguish these individuals from others, but also raises the question of the need for maintaining this distinction. In many respects, the categorical separation of the affected and non-affected groups appears to primarily be a political issue.

The language of Public Law 96-205 reflects the difficulty in establishing this distinction and also what responsibility the U. S. Government should assume for both the health and political/sociological impact of their nuclear testing program. In the narrowest sense it calls for the provision of primary, secondary and tertiary care for the "peoples of" the four most directly affected atolls. Certainly any plan proposed should include this comprehensive care for this particular identified group, but limitation of improved health care to only these people raises serious political, ethical, and cost-effective issues. It is important to detail these more specifically.

B. Issues

1. It is medically impossible to distinguish in any particular individual whether a disease complex or symptom is radiation related or not. Epidemiological studies over time on groups of people can establish increased incidences of particular problems, but this evidence is not particularly helpful in deciding specific causation in any individual.

2. The peoples of Bikini, Enewetok, Rongelap and Utirik are now living on approximately one half of the 26 atolls/islands in the Marshalls. This migration and resulting intermarrying is rapidly spreading those individuals with "direct" radiation effects throughout the Marshalls. With the groups resident among the large populations on Majuro and Ebeye, well over 75% of the total Marshallese population has people from the four affected atolls living among them. This means that even the narrowest interpretation of P. L. 96-205 will require health care to be provided far beyond the four atolls themselves.

3. Preferential treatment for those individuals with "direct" effects will tend to continue the arguments of those not included that they were also affected. The anecdotal stories of people on ships in the fallout area who should be included, as well as other groups, already abound. It appears that the refutation of these numerous claims may require considerable energy and cost in the future, if the advantage of inclusion is significant.

4. The indirect effects are also a matter of considerable discussion. Foodstuffs from affected atolls are shipped elsewhere, fish and other sealife may carry radiation from one area to another, second and third generation offspring of affected people may have

genetic effects, etc. These arguments are difficult to substantiate or refute, but will certainly continue to be raised.

5. It is widely accepted that the secondary and selected tertiary care for the affected people will be provided by the hospitals on Majuro and Ebeye. (The population numbers on Rongelap, Utirik, Kili (for Bikini people) and Enewetok are not sufficient to either justify or support more than primary care provided by a medical assistant on the individual atolls). This will require a major improvement in the services provided by these two hospitals.

6. It is ethically impossible to provide improved health care for the affected peoples and deny it to their neighbors and even families because they do not qualify. This means that the primary care developed on all atolls (approximately 50%) with affected people, as well as the secondary care in the hospitals should be designed for and available to other Marshallese citizens. The only other alternative, a duplicate health care system throughout, is both unrealistic and politically and economically unacceptable.

7. The Marshallese Government officials have made clear their desire for the Burton Bill (PL 204-95) impact to be a national one, rather that treating parts of their newly emerging state preferentially. Their logic is understandable. While trying to unify rather diverse island people into a new nation, it is not helpful to have the U. S. continue to deal independently with some atolls or people.

8. Health care systems become less cost-effective the smaller the population they serve. The 30,000 population of the Marshall Islands is already so small as to raise economic issues. Further reducing this to the approximately 2,000 people "directly" affected will only marginally reduce the total costs. In other words, a

certain critical workload is necessary to justify and maintain a clinic or hospital, and without it there is not only increased costs, but frustrated employees who have difficulty maintaining skills.

These appear to be the significant issues in deciding between a four atoll versus comprehensive nationwide health plan. The primary disadvantage to the national plan is the stimulated concern of the peoples from the four that they are not receiving their due advantage in the system. To deal with this, it would seem logical to have their atolls be part of the initial phase of a national plan so they can experience some benefits first. Then eventually the improved health care can spread throughout the remaining atolls.

This initial phase for the four could include an extra support package of air and/or ship services, as detailed in the attached budget. The intermittent nature and relatively high costs of these services make them difficult to justify long-term however, and it may not be good to create an impression of preferential services if they cannot be maintained.

C. Budget

The budget which follows reflects an estimate for providing health care for the people of the atolls specifically named in 96-205. The division primarily affected by this alternate plan is the Division of Primary Care and Public Health. The reason for this is that the other divisions are required to provide services that, to a large extent, must be available for the four atolls as well as for a comprehensive health program for the entire Marshall Islands.

Within the Division of Primary Care and Public Health, the line items showing a decrease are supplies, equipment, personnel cost, transportation, and maintenance.

Offsetting these decreased costs is the additional cost of providing a ship

and/or air support for providing additional health care to the atolls. The figure of $1,059,000 represents an estimate based on figures provided by DOE for eight visits a year or one visit every six weeks to Rongelap, Utirik, Bikini, Enewetok, Kili, and Ujelang. The reason for including Kili and Ujelang is that their population is primarily the people of Bikini and Enewetok, respectively.

While airstrips are not developed at all the above named atolls and cost information is not as available for air transportation as for shipping, it is suggested that the cost would be competitive, and as the airstrips are provided, this means of transportation be used to provide the additional health care.

Should this additional service be included as an extra support package in a comprehensive health plan as discussed above, it would represent approximately an additional million dollars to the budget provided earlier.

FOUR ATOLL HEALTH CARE BUDGET

(Dollars in Thousands)

Years 1-5

	Primary & Public Health	Secondary/ Tertiary	Support Services	Planning and Evaluation	Manpower	Line Item Totals Year 1	Line Item Totals Year 2	Line Item Totals Year 3	Line Item Totals Year 4	Line Item Totals Year 5
Overhead	21.0	67.0	3.0	2.0	3.0	96.0	115.2	138.2	165.9	199.1
Training										
Contractor Services	50.0	100.0	50.0	25.0	25.0	250.0	300.0	360.0	432.0	518.4
Scholarship	50.0	200.0	20.0	10.0	250.0	530.0	636.0	763.2	915.8	1099.0
Supplies										
Medical	250.0	1800.0	-0-	-0-	-0-	2050.0	2460.0	2952.0	3542.4	4250.9
Other	100.0	150.0	10.0	10.0	10.0	280.0	336.0	403.2	483.8	580.6
Equipment										
Medical	150.0	1125.0	-0-	-0-	-0-	1275.0	765.0	915.5	1467.3	1760.8
Other	75.0	150.0	25.0	30.0	10.0	290.0	145.8	175.0	210.0	252.0
Personnel Cost										
Physician/Dental Exp. (US)	75.0	600.0	-0-	-0-	-0-	675.0	810.0	972.0	1166.4	1399.7
" " (Marshall)	26.0	180.0	-0-	-0-	-0-	206.0	247.2	296.6	356.0	427.2
" " (Other)	-0-	80.0	-0-	-0-	-0-	80.0	96.0	115.2	138.2	165.9
Medical Support Exp. (US)	30.0	251.0	-0-	-0-	-0-	281.0	337.2	404.6	485.6	582.7
" " (Marshall)	140.7	790.0	-0-	-0-	-0-	930.7	1116.8	1340.1	1608.2	1929.8
" " (Other)	32.0	209.0	-0-	-0-	-0-	241.0	289.2	347.0	416.4	499.7
Other Exp. (US)	-0-	-0-	140.0	89.0	30.0	259.0	310.8	373.0	447.6	537.1
" (Marshall)	14.0	113.0	56.0	15.0	6.0	204.0	244.8	293.8	352.5	423.0
" (Other)	-0-	28.0	-0-	-0-	14.0	42.0	50.4	60.5	72.6	87.1
Transportation inc. Per Diem										
Medical	50.0	200.0	-0-	-0-	-0-	250.0	300.0	360.0	432.0	518.4
Recruiting	10.0	50.0	25.0	25.0	10.0	120.0	144.0	172.8	207.4	248.8
Ship	1059.0	-0-	-0-	-0-	-0-	1059.0	1170.8	1525.0	1830.0	2195.9
Other	10.0	60.0	15.0	30.0	15.0	130.0	156.0	187.2	224.6	269.6
Communication	1.0	1.0	6.0	1.0	1.0	10.0	12.0	14.4	17.3	20.7
New Construction	75.0	-0-	-0-	-0-	-0-	75.0	250.0	600.0	600.0	100.0
Maintenance										
Building	50.0	250.0	-0-	-0-	-0-	300.0	360.0	432.0	518.4	622.1
Equipment	133.2	815.9	8.0	10.0	3.0	970.0	1164.1	1396.9	1676.3	2011.5
Totals	2401.9	7219.9	358.0	247.0	377.0	10603.7	11917.1	14598.2	17766.7	20700.0

XIII. Utilization of United States Public Health Service Alternative

It was requested that costs be developed for having an agency such as United States Public Health Service implement and provide comprehensive health care for the Marshall Islands. It would be presumptious to assume that costs could accurately be defined for a USPHS program. In developing a cost difference, it was assumed that the basic program, equipment, supply levels, and facilities would be the same as considered in developing the other budgets. The area where major cost differences would occur was felt to be in Personnel Cost. Again, it is not known specifically how USPHS would staff the program but, the estimate for cost increase with a USPHS administered program for the first year is approximately $225,000 increasing to $466,560 in the fifth year. This would be true of both the comprehensive program and the four atoll program.

In addition to the higher cost is the consideration of program acceptability to the Marshall Islands. Without exception, each area of investigation concluded that U. S. skill levels were desired but the Marshall Islands did not want a "U. S. administered program". While this attitude cannot be quantified, it certainly would have an affect on the utilization of the program with a resulting effect on the benefit for the dollars invested. Because of higher costs and, more importantly, the unacceptability of this alternative, it is recommended that it not be given serious consideration.

APPENDICES

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APPENDIX A

Burton Bill

NOTE: Inadvertently, the wrong authorization bill was inserted as Appendix "A".

Correct bill, i.e., H.R. 3756, now being run off and will be provided later.

96TH CONGRESS
2D SESSION

H. R. 7330

To authorize appropriations for certain insular areas of the United States, and for other purposes.

IN THE HOUSE OF REPRESENTATIVES

MAY 13, 1980

Mr. PHILLIP BURTON (for himself, Mr. LAGOMARSINO, Mr. CLAUSEN, Mr. WON PAT, and Mr. EVANS of the Virgin Islands) introduced the following bill; which was referred to the Committee on Interior and Insular Affairs

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A BILL

To authorize appropriations for certain insular areas of the United States, and for other purposes.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,

TITLE I—AMERICAN SAMOA

SEC. 101. Notwithstanding any other provision of law and subject to valid existing rights, all right, title, and interest of the Government of the United States in personal property situated in American Samoa that is not used by Federal

agencies in their operations is hereby transferred, without reimbursement, to the American Samoa government.

TITLE II—GUAM

SEC. 201. (a) Section 3 and section 5 of the Act entitled "An Act to provide for the rehabilitation of Guam, and for other purposes" (Public Law 88–170; 77 Stat. 302) are hereby repealed.

(b) The Act entitled "An Act to provide for the rehabilitation of Guam, and for other purposes" is amended by adding at the end thereof the following new section:

"SEC. 7. The government of Guam shall not be liable to the United States on and after the effective date of this section for repayment of any amount appropriated under this Act which was not repaid to the United States before such date.".

TITLE III—NORTHERN MARIANA ISLANDS

SEC. 301. (a)(1) For grants to the government of the Northern Mariana Islands for the rehabilitation, upgrading, and construction of public facilities, there is hereby authorized to be appropriated to the Secretary of the Interior (hereinafter in this Act referred to as the "Secretary") $10,000,000 for fiscal year 1981 and thereafter, plus or minus such amounts, if any, as may be justified by reason of ordinary fluctuations in construction costs from October 1980

price levels as indicated by engineering cost indexes applicable to the types of construction involved.

(2) The Secretary may place such stipulations as he deems appropriate on the use of funds appropriated pursuant to subsection (a)(1) hereof.

(3) Grants provided pursuant to this Act and not obligated or expended by the government of the Northern Mariana Islands during any fiscal year will remain available for obligation or expenditure by such government in subsequent fiscal years for the purposes for which the funds were appropriated.

(4) Authorizations of moneys to be appropriated under this subsection shall be effective on October 1, 1980.

TITLE IV—TRUST TERRITORY OF THE PACIFIC ISLANDS

SEC. 401. Section 101 of the Act of March 12, 1980 (94 Stat. 84), is amended by changing the commas after "program" and "system" to semicolons; by deleting the word "and" after "system"; and by inserting after "Ponape;" the following: "for expenditure by grant or contract for the installation, operation, and maintenance of communications systems that will aid internal and external communications; and, after consultation with the Secretary of Energy, for developing the use of renewable sources of energy;".

SEC. 402. There is hereby authorized to be appropriated to the Secretary of the Interior an amount equal to 50 per centum of such sums as may be necessary to satisfy all adjudicated claims and final awards made before the date of the enactment of this Act by the Micronesian Claims Commission under title I of the Micronesian Claims Act of 1971 (85 Stat. 96; 50 U.S.C. App. 2018 et seq.), to be used by the Secretary for the payment of such awards.

SEC. 403. Notwithstanding any other provision of law and subject to valid existing rights, all right, title, and interest of the Government of the United States in personal property situated in the Trust Territory of the Pacific Islands and of the government of the Trust Territory of the Pacific Islands in personal property wherever located that is not used by Federal agencies of the Government or the Trust Territory of the Pacific Islands in their operations is hereby transferred, without reimbursement, to the governments of the Northern Mariana Islands, Palau, the Marshall Islands or the Federated States of Micronesia according to a list of distribution established by the government of the Trust Territory of the Pacific Islands in consultation with the recipient governments within ninety days after enactment of this section. If no government exists in Palau at the time of enactment of this section that is capable of receiving title to such property in its own name, the government of the Trust Territory of

the Pacific Islands shall hold such property in trust for such government in Palau until such government is established.

TITLE V—VIRGIN ISLANDS

SEC. 501. Notwithstanding any other provision of law, parcels 2 and 22 (Estate Upper Bethlehem, Saint Croix, United States Virgin Islands) and parcels 2A and 23 (Fredensborg and Upper Bethlehem, Saint Croix, United States Virgin Islands) and parcel 24 (Estate Body Slob and Upper Bethlehem, Saint Croix, United States Virgin Islands) are hereby transferred, without any cost to the Virgin Islands government, to the Virgin Islands government.

TITLE VI—MISCELLANEOUS

SEC. 601. GENERAL TECHNICAL ASSISTANCE.—(a) The Secretary of the Interior is authorized to extend to the governments of American Samoa, Guam, the Northern Mariana Islands, the Virgin Islands, and the Trust Territory of the Pacific Islands, and their agencies and instrumentalities, with or without reimbursement, technical assistance on subjects within the responsibility of the respective territorial governments. Such assistance may be provided by the Secretary of the Interior through members of his staff, reimbursements to other departments or agencies of the Federal Government under the Economy Act (31 U.S.C. 686), grants to or cooperative agreements with such governments, agreements with Federal agencies or agencies of State or local

governments, or the employment of private individuals, partnerships, or corporations. Technical assistance may include research, planning assistance, studies, and demonstration projects.

(b) There are authorized to be appropriated such sums as may be necessary to carry out this section.

SEC. 602. Title V of the Act of October 15, 1977, entitled "An Act to authorize certain appropriations for the territories of the United States, to amend certain Acts relating thereto, and for other purposes" (91 Stat. 1159) shall be amended as follows: At the end of subsection (d) strike the sentence beginning with "Notwithstanding any other provision of law" and ending with "or the Northern Mariana Islands." and substitute the following sentence: "Notwithstanding any other provision of law, in the case of American Samoa and the Northern Mariana Islands any department or agency shall waive any requirements for local matching funds (including inkind contributions) required by law to be provided by American Samoa or the Northern Mariana Islands.".

SEC. 603. In the event that a political union is effected at a future time between the Territory of Guam and the Commonwealth of the Northern Mariana Islands, the Federal Government and each of its agencies is authorized and directed to assure that—

(i) there will be no diminution of any rights or entitlements otherwise eligible to said territory and Commonwealth in effect on the effective date of such union,

(ii) there will be no adverse effect on any funds which have been or may hereafter be authorized or appropriated for said territory or Commonwealth, as of the effective date of such union, or

(iii) no action is taken that would in any manner discourage such unification.

Whenever any discrepancy exists or arises between the benefits available for either said territory or Commonwealth under any policies or programs authorized by law (including, but not limited to, any formulas for matching grants-in-aid or comparable programs or benefits), the most favorable terms available to either said territory or Commonwealth shall be deemed applicable to said unified area after the effective date of unification.

SEC. 604. Notwithstanding any other provision of law to the contrary, funds appropriated under the Emergency School Aid Act for fiscal year 1980 which are available for use in American Samoa, Guam, the Northern Mariana Islands, Puerto Rico, the Trust Territory of the Pacific Islands, and the Virgin Islands shall be available in such areas for the purposes set forth in section 702 of the Emergency

School Aid Act as such section was in effect immediately before September 30, 1979.

SEC. 605. There is hereby authorized to be appropriated to the Secretary of the Interior such sums as may be necessary to be expended, after consultation with the Secretary of Energy, for developing the use of renewable sources of energy in the Virgin Islands, Guam, American Samoa, and the Northern Mariana Islands by—

(1) surveying existing sources and uses of energy;

(2) estimating future energy needs to the year 2020;

(3) assessing, in depth, the potential of renewable energy sources, including solar, wind, hydropower, ocean current and tidal, biogas biofuel, geothermal and ocean thermal energy conversion;

(4) demonstrating those renewable energy technologies that are determined to be most cost effective;

(5) drafting a plan for long-term energy development in such territories making use of those renewable energy technologies successfully demonstrated under paragraph (4) of this section and other technologies based on other sources of energy.

SEC. 606. Authorizations of moneys to be appropriated under this Act shall be effective on October 1, 1980.

SEC. 607. Authority to enter into contracts, to incur obligations, or to make payments under this Act shall be effective only to the extent or in such amounts as are provided in advance in appropriations Acts.

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APPENDIX B

Request for Proposal # 14-01-0001-80-R-75

AUG 11 1980

United States Department of the Interior

OFFICE OF THE SECRETARY
WASHINGTON, D.C. 20240

AUG 08 1980

Memorandum

To: Prospective Offerors

From: Branch of Procurement Management

Subject: Request for Proposals (RFP) 14-01-0001-80-R-75

The High Commissioner of the Trust Territories of the Pacific Islands solicits your organization to submit a proposal to develop a Health Plan for the Marshall Islands.

Offerors must submit their proposals in accordance with the requirements set forth herein. The proposals shall be submitted in two (2) separate parts: a "Technical Proposal" and a "Business Management Proposal" as set forth herein. Four (4) copies of your Business Management Proposal and six (6) copies of your Technical Proposal, signed by an official authorized to bind the offeror shall be submitted not later than 4:00 p.m. local time on September 3, 1980, to:

U.S. Department of the Interior
Office of the Secretary - PMO
Branch of Procurement Management
Room 2619, 18th & E Streets, N.W.
Washington, D.C. 20240
Attn: Gregory D. Rothwell

It is contemplated that a Cost Reimbursement Type of contractual arrangement will be negotiated; however, other types of contracts will be considered. The General Provisions, additional clauses, and specifications will be made a part of any resultant contract, and in addition to other clauses required by Public Law, Executive Orders, and Government Procurement Regulations which are in effect at the time of award.

It should be noted that you will not be participating in a formally advertised procurement. Issuance of this solicitation does not constitute an award commitment on the part of the Government. Further, the Government reserves the right to reject any or all proposals received. It is understood that your proposal will become part of the official file on this matter without obligation to the Government.

If it is determined that a proper basis exists, award may be made without negotiation to the technically responsive and responsible offeror submitting the lowest offer initially. Accordingly, each initial offer should be submitted on the most favorable terms from a price and technical viewpoint which the offeror can submit to the Government.

It is anticipated that information to unsuccessful offerors covering contract award will not be available until after contract award. No pre-award information concerning the status of this procurement will be furnished other than to those organizations contacted for negotiations.

This request does not commit the Government to pay for costs incurred in the submission of a proposal or for any other costs incurred prior to the execution of a formal contract unless such costs are specifically authorized in writing by the Contracting Officer.

The Contracting Officer is the only individual who can legally commit or obligate the Government to the expenditure of public funds should a contract result by reason of a response to this Request for Proposals.

Prospective Offerors are cautioned against contacting technical personnel of the U.S. Department of the Interior in regard to this Request for Proposal prior to contract award. All communications with the U.S. Department of the Interior concerning the procurement must be directed to Mr. Gregory D. Rothwell on (202) 343-2105.

Offerors are requested to identify specifically any information contained in their proposal which they consider confidential and/or proprietary and which they prefer not to be disclosed to the public. The identification of information as confidential and/or proprietary is for informational purposes only, and shall not be binding on the Government to prevent disclosure of such information. Title page and/or blanket restrictive legends are not acceptable for identification of information under this provision.

Sincerely,

Gregory D. Rothwell

Gregory D. Rothwell
Chief, Branch of Procurement
Management

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SOLICITATION INSTRUCTIONS AND CONDITIONS

Evaluation Criteria

Proposals received in accordance with this RFP will be evaluated by a Technical Evaluation Committee consisting of Federal agency representatives and such additional personnel as the Government may select to participate.

1. Offeror's Understanding of the Project — 40 points

a. Understanding of the project objectives and capability for response to specific questions.

b. understanding of the information needed for policy analysis;

c. identification of the problems to be encounted in performance; and

d. familiarity or past experience with all relevant data resources which are available.

2. Personnel and Organizational Qualifications — 20 points

a. Personal qualifications (experience/training) - the Project Director and/or Principal Investigator and any assigned project assistants; and

b. organizational qualifications, resources, objectivity, report quality and related experience.

3. Methodology and Work Plan — 30 points

a. Soundness and breadth of approach;

b. utilization of all resources and new research if needed.

4. Management of the Project — 10 points

a. Adequacy of involvement of key individuals;

b. commitment to meeting scheduled milestone particularly with respect to reporting requirements.

Total 100 points

Background Paper on a Health Plan
for the Marshall Islands

Article 1--Introduction

P.L. 96-205 requires the Secretary of the Interior to develop an integrated, comprehensive health care program and a program of environmental research and monitoring for the peoples of the Marshalls for any injury, illness, or condition which may be the result directly or indirectly of the U.S. nuclear weapons testing program.

1. The statute. The pertinent statute is Public Law 96-205, approved March 12, 1980, which provides in section 102:

> "(a) In addition to any other payments or benefits provided by law to compensate inhabitants of the atolls of Bikini, Enewetak, Rongelap, and Utirik, in the Marshall Islands for radiation exposure or other losses sustained by them as a result of the United States nuclear weapons testing program at or near the atolls during the period 1946 to 1958, the Secretary of the Interior (herein after in this section referred to as the 'Secretary') shall provide for the people of the atolls of Bikini, Enewetak, Rongelap, and Utirik and for the people of such other atolls as may be found to be or to have been exposed to radiation from the nuclear weapons testing program, a program of medical care and treatment and environmental research and monitoring for any injury, illness, or condition which may be the result directly or indirectly of such nuclear weapons testing program. The program shall be implemented according to a plan developed by the Secretary in consultation with the Secretaries of Defense, Energy, and Health, Education, and Welfare and with the direct involvement of representatives from the people of each of the affected atolls and from the government of the Marshall Islands. The plan shall set forth, as appropriate to the situation, condition, and needs of the individual atoll peoples:
>
> "(1) an integrated, comprehensive health care program including primary, secondary, and tertiary care with special emphasis upon the biological effects of ionizing radiation;
> "(2) a schedule for the periodic comprehensive survey and analysis of the radiological status of the atolls to and at appropriate intervals, but not less frequently than once every five years, the development of an updated radiation dose assessment, together with an estimate of the risks associated with the predicted human exposure, for each such atoll; and

"(3) an education and information program to enable the people of such atolls to more fully understand nuclear radiation and its effects;

"(b)(1) The Secretary shall submit the plan to the Congress no later than January 1, 1981, together with his recommendations, if any, for further legislation. The plan shall set forth the specific agencies responsible for implementing the various elements of the plan. With respect to general health care the Secretary shall consider, and shall include in his recommendations, the feasibility of using the Public Health Service. After consultation with the Chairman of the National Academy of Sciences, the Secretary of Energy, the Secretary of Defense, and the Secretary of Health, Education, and Welfare, the Secretary shall establish a scientific advisory committee to review and evaluate the implementation of the plan and to make such recommendations for its improvement as such committee deems advisable.

"(2) At the request of the Secretary, any Federal agency shall provide such information, personnel, facilities, logistical support, or other assistance as the Secretary deems necessary to carry out the functions of this program; the costs of all such assistance shall be reimbursed to the provider thereof out of the sums appropriated pursuant to this section.

"(3) All costs associated with the development and implementation of the plan shall be assumed by the Secretary of Energy and effective October 1, 1980, there are authorized to be appropriated to the Secretary of Energy such sums as may be necessary to achieve the purpose of this section.

"(c) The Secretary shall report to the appropriate committees of the Congress, and to the people of the affected atolls annually, or more frequently if necessary, on the implementation of the plan. Each such report shall include a description of the health status of the individuals examined and treated under the plan, an evaluation by the scientific advisory committee, and any recommendations for improvement of the plan. The first such report shall be submitted not later than January 1, 1982.".

2. What the statute requires. Section 102, quoted above, is not free of ambiguity. It has been argued by some that the plan required of the Secretary of the Interior, and the program resulting from it, should be restricted solely to the four named atolls, and then only to injuries, illnesses, or conditions resulting from the nuclear testing program. It has been argued by others that the plan, and the resulting program, should apply to all atolls and islands of the Marshall Islands, and should provide comprehensive medical care to all people of the Marshall Islands.

The Interior Department has not reached any definitive position with respect to the scope of the plan required, or of the program to arise from it. It would welcome the early expressions of views from any source as to the requirements of the statute. Preliminarily, the Interior Department suggests that the most reasonable reading of the statute appears to be that the Secretary's plan should provide for comprehensive health care for the inhabitants of the four listed atolls — Bikini, Enewetak, Rongelap, and Utirik; and that the inhabitants of additional atolls should also be afforded comprehensive health care if they have been affected by radiation from the nuclear weapons testing program. In deciding whether the inhabitants of additional atolls have been so affected, the Secretary would consider information obtained from on-site health evaluations of the people of those atolls, and other relevant evidence presented to him.

3. The Interior Department has asked the Department of Energy to provide advice to Interior by mid-November 1980 as to the details of the schedule required by subsection (a)(2), pertaining to environmental research and monotoring, radiation dose assessments, and risk estimates, and the education and information program required by subsection (a)(3). The Department of Energy has agreed to provide this detailed advice by that date.

4. Background information:

(a) Rongelap and Utirik

The medical monitoring and follow-up care program of the exposed people of Rongelap and Utirik atolls commenced after the Bravo Shot Fallout of March 1, 1954. This program has been the responsibility of the Atomic Energy Commission, the Energy Research and Development Administration, and now the Department of Energy. The medical monitoring and follow-up medical care program of the exposed residents of these two atolls, and for members of selected "comparison" groups, has from the onset of the program been contracted to the Brookhaven National Laboratory, Associated Universities, Upton, New York.

Brookhaven now has 26 years of medical research findings and experience in the field with the people of Rongelap and Utirik. It is regarded, therefore, as essential that any health care organization that develops a plan for future health care of the people of the "affected atolls" work closely with the Medical Department of the Brookhaven National Laboratory on past and current medical activities, as well as recommendations for the future. It is estimated that costs to the Medical Department of Brookhaven National Laboratory to participate in this phase of the planning work will be in the range of $40,000 to $50,000. The basic contract must include reimbursement funds for the Brookhaven National Laboratory for participation in the overall health plan contract.

The Brookhaven medical program for the people of Rongelap and Utirik basically has been a medical research program, but this mandate has, of necessity, over the years been expanded to include care of non-radiation related diseases. This has been occasioned by the lack in the past of adequate primary medical care in the Marshall Islands.

In 1954, 84 Rongelapese were exposed to fallout. Of these 84 originally exposed individuals, 50 are still living. There are also some 500 to 600 unexposed Rongelapese, made up of descendants of the exposed group plus the Marshallese who have Rongelapese blood or marriage affiliation. About 500 of the unexposed Rongelapese have been used on occasion as a "comparison" group to the exposed population.

The original Utirik exposed group consisted of 158 individuals, of which 120 still are alive. Another 500 unexposed Utirikese, made up of descendants of the exposed group and Marshallese with Utirik blood or marriage affiliation, also fall into the Utirik catagory. Some 375 of this larger group have been studied as a "comparison" group to the exposed Utirikese.

(b) Bikini

Bikini Atoll was the site of 23 U.S. atmospheric tests. The 170 Bikinians resident there in 1946 were removed from the atoll in March 1946 prior to the start of the testing program. After several years of very unsatisfactory resettlement efforts in other parts of the Northern Marshalls, the Bikinians were resettled in March 1948 on the isolated island of Kili in the southern Marshalls. Thus, from March 1948 onward the main body of the people of Bikini have lived well outside the zone of the nuclear tests.

No radiological monitoring or medical examinations were conducted on any Bikinians until the early 1970's, after a small group returned to Bikini Island. The group, at first consisting of workers, then expanded to family groups, periodically was radiologically monitored. In April 1978, some 99 of the 145 residents on Bikini island had whole body count examinations as well as medical examinations. These 145 residents were evacuated from Bikini Island in late August 1978. Some of this group have been given follow-up monitoring examinations since the August 1978 removal.

Today there are over 900 Bikinians. Some 500 or so reside on Kili Island, another 140 live on Ejit Island near Majuro, some 100 or so live in Majuro, and another 100 or so live on Ebeye. Small numbers are scattered in other parts of the Marshalls.

In 1969, after certain parts of Bikini Atoll were considered safe for resettlement, small numbers of Bikinians began to return to Bikini Island. The first returnees, as noted above, were workers in the cleanup and rehabilitation program started in 1970. Gradually, family members joined the workers and by the mid-1970's some 60 or so Bikinians were in residence on Bikini Island. By 1978, the group had grown to 145 individuals. It was this group that was evacuated from Bikini Island in late August 1978 when the Interior Department concluded that "body burden levels" exceeded acceptable standards. Cesium 137 ingestion from locally grown foods primarily appeared to be the cause for the rising body burden levels. As a result, it now has been determined that Bikini Island must be off limits for another 60 years.

Additionally, some 50-60 Marshallese of non-Bikinian descent lived and worked on Bikini Island for varying periods between 1970-76. These individuals also must be considered.

There has also been close association, including inter-marriage, between the people of Rongelap and people of Bikini. At least one exposed Rongelapese and his family were resident on Bikini Island in 1978 when the last evacuation occurred.

The latest resettlement proposal of the people of Bikini involves living on the island of Eneu in the Bikini Atoll, probably on a rotation basis, and the maintenance of a community on Kili Island. Should this proposal be feasible, health care must be planned for (1) the Kili Island community, (2) a possible community on Eneu Island, Bikini Atoll, (3) a small Bikini community in Majuro, and (4) several hundred other Bikinians residing at Ebeye and other parts of the Marshalls.

(c) Enewetak

In 1947, the 142 residents of Enewetak Atoll also were evacuated from their home atoll. They were settled on Ujelang Atoll, which lies 124 miles southeast of Enewetak, in the Northern Marshalls. From 1948 to 1958, there were 43 test detonations performed at Enewetak Atoll.

Ujelang Atoll is within the region of low level fallout. At least once during the nuclear testing period, it is reported that the U.S. Navy temporarily evacuated the people of Ujelang by taking the entire community to sea during a test operation.

Today approximately 500 people make up the Ujelang-Enewetak community, with another 40 or so Ujelangese living on Ebeye or Majuro.

With the start of the cleanup and rehabilitation program of Enewetak Atoll in 1976, a small revolving community of some 60 Ujelangese was permitted to live on Japtan Island in the southern part of Enewetak Atoll. Most of the members of the Ujelang community have thus lived for at least a six month period on Japtan Island during the timespan of 1976-1980. In April 1980, the Japtan community was expanded to 140 individuals. As of July 1, 1980, 265 Enewetakese had returned to the three new communities. Most of the remaining population on Ujelang is expected to return to Enewetak and Medren within the coming year. Ujelang Atoll, however, will continue to be used as a source of fresh food supply and will be in continual use for the next 8-10 years by the Enewetak people, either by having an outpost community there or a revolving community. Health care for the people of Enewetak, accordingly, must be provided at Ujelang if a community remains there as well as Enewetak.

The Department of Energy in the spring of 1980 carried out a "whole body" count on the entire Ujelang group prior to the planned return to the southern parts of Enewetak Atoll. No basic medical survey of the Enewetak group has as yet been carried out.

(d) Other Atolls of the Northern Marshalls

The Government of the Marshall Islands has expressed considerable concern that other atolls in the Northern Marshalls known to be in the areas of low level radiation fallout, should in reality be listed in the category of "affected atolls".

In early 1979, the Government of the Marshall Islands on the basis of results of interviews, questionnaires, and examinations of the people of Likiep Atoll came to the conclusion that there is more than a normal incidence of thyroid disorders, throat problems, and other medical abnormalities among the people of that atoll.

The Government of the Marshalls has requested that the health of the people of Likiep and associated atolls be studied. The Department of Energy has agreed to provide a biochemical screening profile of the people of Likiep Atoll, and of the people of one other atoll in the Marshalls to be selected as a comparison population. Medical staff would be included in the survey team. Negotiations between the Department of the Interior, the Department of Energy, and the Government of the Marshall Islands currently (summer 1980) are underway to accomplish the carrying out of the screening profile of the people of Likiep Atoll.

(e) Current practice

Annual costs for the medical monitoring, follow up care, and environmental monitoring program of the Department of Energy for the people of Rongelap and Utirik currently are in the range of $3-4 million. In contrast, in FY 80, the entire health budget of the Marshall Islands Government was $2.7 million. This amount had to provide curative and preventive medical care and programs for a population of over 30,000 people, many scattered on outer islands. This amount supported the major hospital at Majuro, which serves as the only major in-patient facility in the Marshalls. The current hospital facility in Majuro has 90 beds and is in very poor condition, but funds for a new hospital have been appropriated. In addition to the Majuro hospital and an Ebeye sub-hospital, the Marshalls Health Department supports some 56 out-island dispensaries. Some of these are under-manned and ill-equipped.

Administrative and professional staffing of the health services of the Marshalls has not met minimum acceptable health standards in the past. In an attempt to improve health care, the Marshall Islands Government recently concluded an agreement with a "medical care adjunct" of the Seventh-Day Adventist Mission in Guam to take over the control and management of health services from the Ministry of Health Services. This new health care service agency should be brought into any planning exercise by the contractor at an early stage.

(f) Special Problems Related to Diversity of Residence

Monitoring and special health care for the people of Rongelap, Utirik, Bikini, and Enewetak must be provided not only in their home atolls but in other parts of the Marshall Islands where considerable numbers of these individuals now reside either on a temporary or permanent basis. For example, there often are as many Rongelapese and Utirikese living on Ebeye and/or Majuro as are in residence on Rongelap and Utirik Atolls. The past and current medical program under the auspices of the Department of Energy has had to be tailored to the places where the residents are living at the time of the quarterly or annual surveys. This pattern can be expected to continue in the future and must be an integral part of any proposed health care program.

Large numbers of Bikinians also are scattered throughout the Marshalls and these individuals also will be entitled to medical care. Although the people of Enewetak, having lived on the isolated atoll of Ujelang for the past 34 years, are the most cohesive group, under the current return program to the atoll of Enewetak, four communities will be in existence. There will be new communities on (1) Enewetak Island, on (2) Medren Island, and on (3) Japtan Island in the southern part of Enewetak Atoll. Distance between these islands is too great to permit one centralized local health facility. For the foreseeable future also, there very likely will be an Enewetak community of varying size on (4) Ujelang Atoll, which is 124 miles southeast of Enewetak, and this community also must be provided with medical care.

Article II. Objective

The purpose of this study is to provide the Secretary of the Interior with recommendations on which he can base a health care plan for the peoples of the Marshalls identified in P.L. 96-205. He must submit the plan to Congress no later than January 1, 1981.

5. Definition of Comprehensive Health Care

The contractor should use the following definition of comprehensive health care:

Primary Care

Primary care is the care received when the patient first seeks assistance from the medical care system. The care at that point would include the care and treatment of the simpler and/or more common illnesses, or determine the need for consultation with or referral to medical specialists. In addition to immediate care, primary care may also include ongoing responsibility for the patient in both health maintenance and therapy.

Secondary Care

Secondary care is the care provided by medical specialists who generally do not have first contact with the patient, for example, neurologists, internists, and dermatologists. This care generally cannot be provided at the primary care level and is obtained upon consultation or referral through the primary health care system.

Tertiary Care

Tertiary care consists of services provided by highly specialized medical personnel, for example, neurologists and neurosurgeons. Such services generally require highly sophisticated technological and support facilities, such as intensive care units and specialized surgical facilities. These specialized services and facilities generally are not available at the secondary care level.

Article III—Specific Task

6. Responsibilities of the Contractor

The Department of the Interior requires the contractor to offer advice, by mid-November, on at least the following:

(a) A plan to provide for comprehensive health care for the peoples of Bikini, Enewetak, Rongelap, and Utirik, and for the peoples of additional atolls if they have been affected by radiation from the nuclear weapons testing program. In deciding whether the peoples of additional atolls have been so affected, the Secretary would consider information obtained from on-site health evaluations of the people of those atolls, and other relevant information presented to him.

It would be anticipated that the health evaluations would focus initially on atolls of the Northern Marshall Islands, beyond the four specified. The sequence in which atolls would be investigated would be developed following consultation with the representatives of the people of each of the affected atolls and the Government of the Marshall Islands.

Comprehensive health care would encompass primary, secondary, and tertiary care, as herein defined. Such comprehensive care would include the necessary infrastructure, including communication and transportation capability. The health care program would give special emphasis to the detection and treatment of any injury, illness, or condition that may be the result, directly or indirectly, of the nuclear weapons testing program.

The contractor should undertake to insure that, to the extent possible, the services and activities to be provided under the proposed plan be integrated to achieve maximum efficiency. In particular, the health care functions of the Government of the Marshall Islands should be coordinated with the health care program established pursuant to the statute. The contractor will be required to provide cost estimates for this plan.

(b) Although the Interior Department's preliminary view is that a plan for comprehensive health care for all of the Marshalls exceeds the boundaries of the statute, it asks the contractor also to develop an integrated, comprehensive health care program for all atolls and islands of the Marshalls. As the statute provides, the extent of care to be provided would be appropriate to the "situation, condition, and needs of the individual atoll peoples". The contractor will be required to provide costs estimates for this plan.

(c) Although the Interior Department's preliminary view is that a program for health care that is more extensive than that outlined in (a) above, and less extensive than that outlined in (b), exceeds the boundaries of the statute, it asks the contractor to develop a health care program for the Marshalls along the following lines:

The Interior Department would initiate promptly implementation of a comprehensive health care plan, including health evaluation, of all of the peoples of Rongelap, Utirik, Bikini, and Enewetak, and would provide them primary, secondary, and tertiary care. Access to secondary and tertiary medical care would be afforded by appropriate communication and transportation capabilities (that is, voice and visual communication with the medical center at Majuro, and emergency evacuation capabilities), as part of the comprehensive health care program.

Concurrently, the Secretary would begin to establish a basic primary health care capability on other inhabited atolls. This basic primary health care would generally consist of a trained aide, a dispensary, and communication and transportation capabilities. Subsequent to the health care evaluation of the four named atolls, the Secretary would carry out a health evaluation of the peoples of other inhabited atolls in the Marshall Islands. The extent to which additional health care services may be included would be determined by the information obtained from the health evaluation of the peoples of these atolls. The Secretary would carry out the health evaluation at other atolls in a sequential manner, to be determined following consultation with representatives of the people of the atolls and the government of the Marshall Islands. The contractor will be required to provide cost estimates for this plan.

(d) Although the Interior Department's preliminary view is that a program for health care that is less extensive than that outlined in (a) above may not meet the requirements of the statute, it asks the contractor to develop a plan to provide health care for the people of Bikini, Enewetak, Rongelap, Utirik, Likiep, Mejit, Ailuk, Wotho, Wotje, Ujae, and Lae atolls, with respect to any injury, illness, or condition that may be the result, directly or indirectly, of the nuclear weapons testing program. The contractor will be required to provide cost estimates for this plan.

(e) To the extent relevant to each of the foregoing plan(s) the Contractor should provide information with respect to the following:

(1) Rongelap and Utirik peoples. What will be required by way of staff, facilities, transportation, communications, equipment, etc., to provide for the continuance of special medical screening and care of the exposed persons and expansion of this special program to provide comprehensive health care for all inhabitants of Rongelap and Utirik. To the extent appropriate, alternative methods of providing this specialized care, plus comprehensive health care, should be presented, along with estimated annual costs. The plan must provide for On-Atoll and Off-Atoll residents.

(2) Enewetak. What will be required by way of staff, facilities, transportation, communications, equipment, etc., to provide for radiological screening of the people of Enewetak in their new communities on Enewetak Atoll and to provide also a comprehensive health care program for them. To the extent appropriate, alternative methods of providing this specialized radiological screening and comprehensive health care should be presented, along with estimated annual costs.

(3) Bikini. What will be required by way of staff, facilities, transportation, communications, equipment, etc., to provide for radiological screening of the people of Bikini if they return to part of the Bikini Atoll? What will be required to provide a comprehensive health care program for the Bikinians in the various locations in which they may reside in the foreseeable future. To the extent appropriate, alternative methods of providing this specialized radiological screening and comprehensive health care should be presented, along with estimated annual costs.

(4) Responsibilities of and services available from the Government of the Marshall Islands. The constitution of the Marshall Islands "recognizes the right of the people to health care, education, and legal services and the obligation to take every step reasonable and necessary to provide these services". (Section 15, Art. 1. Constitution of the Marshall Islands.) The Government of the Marshall Islands has a Ministry of Health and an on-going program of health care.

Any program of health care for the people affected by radiation should be integrated, to the maximum extent possible, with a future health care program of the Government of the Marshall Islands. The contractor, accordingly, will be required to examine current facilities and proposed hospital and dispensary facilities and staff to determine how such local staff and facilities can be utilized to provide comprehensive health care for the peoples of the affected atolls.

(5) Primary care. Because many of the peoples concerned will be living in an "out-island" context, the contractor should set forth recommendations on how "primary care" can best be provided to the people in such a context. This should include recommendations on the type of staff, facilities, training of practitioners, etc. It will be necessary to determine whether present out-island facilities and programs maintained by the Government of the Marshalls Islands can be upgraded and subsidized to provide this essential primary care for the peoples concerned, or whether a separate primary health care system, supported and operated by the U.S, will be required?

(6) Secondary and Tertiary care. The contractor will be required to set forth recommendations on where and in what manner secondary and tertiary care can be most effectively provided, both from treatment and cost standpoints.

(7) Cost of Provision of Comprehensive Health Care for all of the Marshalls. The peoples of the designated affected atolls will require both "on-atoll" and "off-atoll" comprehensive care. Many of the individuals requiring the comprehensive care will be in the present major populated centers. The numbers away from the home atolls may well run into several thousand. The contractor will be requested to draw up cost estimates of a comprehensive health care program for all of the Marshalls that would give the type of comprehensive care required for the peoples of the affected atolls.

Article IV - Deliverables

A. Letter Progess Reports

The contractor shall prepare and submit two letter progress reports not to exceed five pages in length. Each of these reports shall:

1. Identify project status, including an estimation of percentage completion.

2. Report expenditures in period of report and cumulatively and explain deviations from estimated expenditure levels; and

3. Summarize work performed; accomplishments; and problems encountered during period of report; plans for succeeding period; and actions requested for the Department of the Interior.

These reports shall be submitted six (6) copies, five to the Contracting Officer's Technical Representative (COTR) and one to the Branch of Contracts.

Delivery: Not later than the 4th week and the 5th week of the contract.

B. Detailed Work Plan

After gathering and assimilating relevant available information on the subject of this work effort, the contractor shall prepare a detailed sentence outline of the final report. This shall be submitted to the Department of the Interior for review and comment in six (6) copies as indicated in A above. The COTR will reply by approving or recommending modifications to the outline within two (2) weeks of its receipt. If necessary the COTR may request a meeting with key contractor personnel during the two-week period to discuss the proposed detailed outline.

Delivery: Three weeks after contract award.

C. Draft Report

The contractor shall submit a draft report in six (6) copies as indicated in A above. This report should include the results of all the research and any findings. Submission of this draft report should mark the completion of the major elements of the contract, except incorporation of the Department's comments and preparation of the final report. The DOI shall have two (2) weeks to respond to the draft report. If the contractor does not receive a reply or a request for an extension of time within two (2) weeks, the contractor may assume the content of the draft report is acceptable. The DOI may, at its option, request a meeting with the contractor to discuss the draft report during the two (2) week review period.

Delivery: Six (6) weeks after contract award.

D. Final Report

After receipt of the department's comment on the draft report, the contractor shall prepare and submit the final report to the Department in six copies as indicated in A above. The Department will have two (2) weeks to review the final report and indicated to the contractor its acceptability or minor modifications required. If the contractor does not receive a reply from the Department within two (2) weeks, the contractor may presume the final report is acceptable. After acceptance or minor modification of the final report, the contractor shall prepare and submit thirty (30) copies of the final report and a reproducible copy to the COTR. One copy shall be sent to the Branch of Contracts.

Initial Delivery: Seven (7) weeks after contract award.

Final Delivery: Eight (8) weeks after contract award.

E. Briefings

At a time to be arranged by the COTR, but no earlier than the twenty first week of the contract, the contractor shall arrange to have key staff, consultants and subcontractors in attendance at a meeting at the Department of the Interior, Washington, D.C., to present their specific assignments and areas of speciality and the answer to questions on Western coal industry from Department personnel.

Article V - Period of Performance

The contractual period of performance shall be for two months from the date of the contract award.

Article VI - Government's Estimate of Workload

The Government estimates workload for this proposed project to be forty-eight man-months.

APPENDIX C

Public Law 96-205

UNITED STATES INSULAR AREAS
APPROPRIATION AUTHORIZATION

Public Law 96-205
96th Congress

An Act

Mar. 12, 1980
[H.R. 4756]

To authorize appropriations for certain insular areas of the United States, and for other purposes.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,

United States insular areas Appropriation authorization

TITLE I—TRUST TERRITORY OF THE PACIFIC ISLANDS

48 USC 1681 note

SEC. 101. Section 2 of the Act of June 30, 1954 (68 Stat. 330), is amended by inserting after "for fiscal year 1980, $112,000,000;" the following: "for fiscal years after fiscal year 1980, such sums as may be necessary, including, but not limited to, sums needed for completion of the capital improvement program, for a basic communications system, and for a feasibility study and construction of a hydroelectric project on Ponape;".

SEC. 102. The Act entitled "An Act to authorize certain appropriations for the territories of the United States, to amend certain Acts relating thereto, and for other purposes" (91 Stat. 1159; Public Law 95-134) is amended by inserting after section 105, the following new section:

Radiation exposure, compensation, research and medical care
48 USC 1681 note

"SEC. 106. (a) In addition to any other payments or benefits provided by law to compensate inhabitants of the atolls of Bikini, Enewetak, Rongelap, and Utirik, in the Marshall Islands, for radiation exposure or other losses sustained by them as a result of the United States nuclear weapons testing program at or near their atolls during the period 1946 to 1958, the Secretary of the Interior (hereinafter in this section referred to as the 'Secretary') shall provide for the people of the atolls of Bikini, Enewetak, Rongelap, and Utirik and for the people of such other atolls as may be found to be or to have been exposed to radiation from the nuclear weapons testing program, a program of medical care and treatment and environmental research and monitoring for any injury, illness, or condition which may be the result directly or indirectly of such nuclear weapons testing program. The program shall be implemented according to a plan developed by the Secretary in consultation with the Secretaries of Defense, Energy, and Health, Education, and Welfare and with the direct involvement of representatives from the people of each of the affected atolls and from the government of the Marshall Islands. The plan shall set forth, as appropriate to the situation, condition, and needs of the individual atoll peoples:

"(1) an integrated, comprehensive health care program including primary, secondary, and tertiary care with special emphasis upon the biological effects of ionizing radiation;

"(2) a schedule for the periodic comprehensive survey and analysis of the radiological status of the atolls to and at appropriate intervals, but not less frequently than once every five years, the development of an updated radiation dose assessment, together with an estimate of the risks associated with the predicted human exposure, for each such atoll; and

"(3) an education and information program to enable the people of such atolls to more fully understand nuclear radiation and its effects;

Plan, submittal to Congress

"(b)(1) The Secretary shall submit the plan to the Congress no later than January 1, 1981, together with his recommendations, if any, for further legislation. The plan shall set forth the specific agencies responsible for implementing the various elements of the plan. With respect to general health care the Secretary shall consider, and shall include in his recommendations, the feasibility of using the Public Health Service. After consultation with the Chairman of the National Academy of Sciences, the Secretary of Energy, the Secretary of Defense, and the Secretary of Health, Education, and Welfare, the Secretary shall establish a scientific advisory committee to review and evaluate the implementation of the plan and to make such recommendations for its improvement as such committee deems advisable.

Scientific advisory committee

Assistance from Federal agencies

"(2) At the request of the Secretary, any Federal agency shall provide such information, personnel, facilities, logistical support, or other assistance as the Secretary deems necessary to carry out the functions of this program; the costs of all such assistance shall be reimbursed to the provider thereof out of the sums appropriated pursuant to this section.

Development and implementation costs

"(3) All costs associated with the development and implementation of the plan shall be assumed by the Secretary of Energy and effective October 1, 1980, there are authorized to be appropriated to the Secretary of Energy such sums as may be necessary to achieve the purposes of this section.

Report to congressional committees

"(c) The Secretary shall report to the appropriate committees of the Congress, and to the people of the affected atolls annually, or more frequently if necessary, on the implementation of the plan. Each such report shall include a description of the health status of the individuals examined and treated under the plan, an evaluation by the scientific advisory committee, and any recommendations for improvement of the plan. The first such report shall be submitted not later than January 1, 1982.".

SEC. 103. Paragraph 10(a)(3) of Public Law 95-134 (91 Stat. 1159) is hereby amended by deleting all after the word "cause" and inserting in lieu thereof the following words, ", even if such an individual has been compensated under paragraph (1) of this section.".

Federal education and health care programs
48 USC 1695

SEC. 104. Notwithstanding any other provision of law, except in cases in which the Federal program is terminated with respect to all recipients under the program, Federal programs in the fields of education and health care shall not cease to apply to the Trust Territory of the Pacific Islands or any successor government or governments, nor shall participation in any applicable Federal programs in the fields of education and health care by the Trust Territory of the Pacific Islands or any successor government or governments be denied, decreased or ended, either before or after the termination of the trusteeship, without the express approval of the United States Congress.

TITLE II—NORTHERN MARIANA ISLANDS

Government comptroller, salary
48 USC 1681c
48 USC 1681b

SEC. 201. (a) The salary and expenses of the government comptroller for the Northern Mariana Islands shall be paid from funds appropriated to the Department of the Interior.

(b) Section 4 of the Act of June 30, 1954, as amended by section [illegible] of Public Law 93-111 (87 Stat. 351) is further amended as [illegible]

(1) strike the words "government of the Trust Territory of the Pacific Islands" wherever they appear and insert in lieu thereof the words "governments of the Trust Territory of the Pacific Islands or the Northern Mariana Islands,";

(2) after the words "High Commissioner of the Trust Territory of the Pacific Islands" insert the words "or Governor of the Northern Mariana Islands, as the case may be,";

(3) wherever the words "High Commissioner" appear and are not followed by the words "of the Trust Territory of the Pacific Islands" insert the words "or Governor, as the case may be,"; and

(4) after the words "District Court of Guam" insert the words "or District Court of the Northern Mariana Islands, as the case may be".

Health care services grant, effective date

SEC. 202. Effective October 1, 1980, there are hereby authorized to be appropriated to the Secretary of the Interior $24,400,000 plus or minus such amounts, if any, as may be justified by reason of ordinary fluctuations in construction costs from October 1979 price levels as indicated by engineering cost indexes applicable to the types of construction involved, for a grant to the Commonwealth of the Northern Mariana Islands to provide for health care services. No grant may be made by the Secretary of the Interior pursuant to this section without the prior approval of the Secretary of Health, Education, and Welfare.

SEC. 203. Subsection (g) of section 5 of the Act entitled "An Act to authorize appropriations for certain insular areas of the United States, and for other purposes", approved August 18, 1978 (92 Stat. 492), is amended by changing "not to exceed $3,000,000" to "such sums as may be necessary, but not to exceed $3,000,000 for development,".

48 USC 1681 note

SEC. 204. (a) Section 3(d) of the Act entitled "An Act to authorize appropriations for certain insular areas of the United States, and for other purposes" (Public Law 95-348; 92 Stat. 487) is amended by inserting "(1)" after "(d)" and by inserting "or upon receipt of a resolution adopted by both houses of the legislature of the Northern Mariana Islands accompanied by a letter of request from either the Governor or the Lieutenant Governor of the Northern Mariana Islands," after "Constitution of the Northern Mariana Islands," the first place it appears, and by adding at the end of "(d)" the following new paragraphs:

Administration and enforcement duties

"(2) For purposes of carrying out any administration and enforcement required by this subsection, the Secretary of the Treasury (hereinafter in this subsection referred to as the "Secretary"), or his delegate, at no cost to the Northern Marianas government, may (A) employ citizens of the Northern Mariana Islands (as defined by Article III of the Covenant to Establish a Commonwealth of the Northern Mariana Islands in Political Union with the United States (approved, Public Law 94-241; 90 Stat. 2650), or (B) use the services of employees of the government of the Northern Mariana Islands, upon agreement to pay such government for the use of such services. In addition, the Secretary, or his delegate, shall make every effort to assure that citizens of the Northern Mariana Islands (as so defined) are trained to ultimately assume the administration and enforcement duties required of the Secretary or his delegate under this section. Notwithstanding any other provision of law, the Secretary or his delegate is authorized to the maximum extent feasible in administering and enforcing the required sections of the Covenant, to employ and train Northern Mariana Islands' citizens without regard to United States Civil Service hiring or job classification laws or any employment ceilings imposed upon the Secretary. The preceding sentence shall not exempt such Northern Mariana Islands' citizens so hired from any other laws affecting Federal or Internal Revenue Service employees and shall remain in effect until the end of the third full fiscal year following the date of enactment.

Taxpayers information service

"(3) As part of the administration of taxes required by this subsection, the Secretary or his delegate shall establish, at no cost to the Northern Marianas government, a taxpayers information service to provide such information and assistance to citizens of the Northern Mariana Islands (as so defined) as may be necessary for the filing of returns and the payment of such taxes".

Taxes 48 USC 1681 note

(b) The Secretary shall take such steps as are necessary to ensure that the proceeds of taxes collected under the provisions of sections 601, 602, 603, and 604 of the Covenant (Public Law 94-241) are covered directly upon collection into the treasury of the Commonwealth of the Northern Mariana Islands.

90 Stat. 269.

48 USC 1681 note

SEC. 205. (a) Except as provided in subsection (c), any person, including an individual, trust, estate, partnership, association, company, or corporation, which is a resident of or which is organized under the laws of the Commonwealth of the Northern Mariana Islands and which is subject to the provisions of section 601 of the Covenant to Establish the Commonwealth of the Northern Mariana Islands in Political Union with the United States (Public Law 94-241), shall be exempted from the requirements of such section with respect to income derived from sources within the Commonwealth of the Northern Mariana Islands for taxable years beginning after December 31, 1978, and before January 1, 1981. Nothing in this section shall be construed as relieving such person from the obligation to comply with the requirements of section 601 with respect to income derived from sources outside of the Commonwealth of the Northern Mariana Islands.

(b) Except as provided in subsection (c), any person, including an individual, trust, estate, partnership, association, company, or corporation, which is a resident of or which is organized under the laws of the Commonwealth of the Northern Mariana Islands and which is subject to the provisions of section 601 of the Covenant to Establish the Commonwealth of the Northern Mariana Islands (Public Law 94-241), shall be exempt from the requirements of such section with respect to income from sources within the Northern Mariana Islands for its taxable year beginning after December 31, 1980, and before January 1, 1982: *Provided*, That the Secretary receives written notice from the Governor of the Northern Mariana Islands not later than September 30, 1980, that sections 1, 2, 3, 4, and 5 of chapter 2 of Public Law 1-30 of the Commonwealth of the Northern Mariana Islands or its successor, have been repealed in their entirety, effective December 31, 1981.

"Rebate"

(c) It is the sense of Congress that the term "rebate" as used in section 602 of Public Law 94-241 does not permit the abatement of taxes.

TITLE III—GUAM

48 USC 1424c

SEC. 301. (a) Subsection (c) of section 204 of Public Law 95-134 (91 Stat. 1159, 1162) is amended by deleting the second sentence of said subsection.

48 USC 1424c note

(b) Any civil action under section 204 of the Omnibus Territories Act of 1977 (91 Stat. 1162) shall be barred unless it is commenced not later than April 1, 1982.

SEC. 302. The Act of November 4, 1963 (77 Stat. 302), to provide for the rehabilitation of Guam, and for other purposes, is hereby amended as follows:

(1) in the first sentence of section 3, delete the comma after "United States" and delete the words "with interest as set forth below," and

(2) after paragraph (c) of section 3, delete the last paragraph before section 4 and insert in lieu thereof:

48 USC 1421h

"All amounts heretofore withheld from sums collected pursuant to section 30 of the said Organic Act as interest on the amounts made available to the government of Guam pursuant to this Act shall be credited as reimbursement payments by Guam on the principal amount advanced by the United States under this Act.".

SEC. 303. Section 11 of the Organic Act of Guam (64 Stat. 387; 48 U.S.C. 1423a), as amended, is hereby amended by deleting all after the words "December 31, 1980.", and substituting the following language:

Guam Power Authority, refinancing obligations

"The Secretary, upon determining that the Guam Power Authority is unable to refinance on reasonable terms the obligations purchased by the Federal Financing Bank under the fifth sentence of this section by December 31, 1980, may, with the concurrence of the Secretary of the Treasury, guarantee for purchase by the Federal Financing Bank; and such bank is authorized to purchase, obligations of the Guam Power Authority issued to refinance the principal amount of the obligations guaranteed under the fifth sentence of this section. The obligations that refinance such principal amount shall mature not later than December 31, 1990, and shall bear interest at a rate determined in accordance with section 6 of the Federal Financing Bank Act (12 U.S.C. 2285). Should the Guam Power Authority fail to pay in full any installment of interest or principal when due on the bonds or other obligations guaranteed under this section, the Secretary of the Treasury, upon notice from the Secretary shall deduct and pay to the Federal Financing Bank or the Secretary, according to their respective interests, such unpaid amounts from sums collected and payable pursuant to section 30 of this Act (48 U.S.C. 1421h). Notwithstanding any other provision of law, Acts making appropriations may provide for the withholding of any payments from the United States to the government of Guam which may be or may become due pursuant to any law and offset the amount of such withheld payments against any claim the United States may have against the government of Guam or the Guam Power Authority pursuant to this guarantee. For the purpose of this Act, under section 3466 of the Revised Statutes (31 U.S.C. 191) the term 'person' includes the government of Guam and the Guam Power Authority. The Secretary may place such stipulations as he deems appropriate on the bonds or other obligations he guarantees.".

"Person"

TITLE IV—VIRGIN ISLANDS

SEC. 401. (a) Subsection (b) of section 31 of the Revised Organic Act of the Virgin Islands (48 U.S.C. 1541(b)), as amended, is further amended by numbering the existing paragraph "(1)" and by the addition thereto of the following new paragraph:

Property transfer

39 Stat. 1706

"(2) Subject to valid existing rights, title to all property in the Virgin Islands which may have been acquired by the United States from Denmark under the Convention entered into August 16, 1916, [illegible] reserved or retained by the United States in accordance with the provisions of Public Law 93-435 (88 Stat. 1210) is hereby transferred to the Virgin Islands government.".

(b) The General Services Administration shall release from the mortgage dated January 26, 1972, given by the government of the Virgin Islands to the Administrator of the General Services Administration, approximately ten acres of such mortgaged land for construction of the proposed Saint Croix armory upon payment by the government of the Virgin Islands of the outstanding principal due on such ten acres.

Water Island property

SEC. 402. No extension, renewal, or renegotiation of the lease of real property on Water Island in the Virgin Islands to which the United States is a party may be entered into before 1992 unless such extension, renewal, or renegotiation is specifically approved by Act of Congress.

48 USC 1642

SEC. 403. (a) Subsection 28(a) of the Revised Organic Act of the Virgin Islands is amended by inserting after the words "and naturalization fees collected in the Virgin Islands," the following: "(less the cost of collecting such duties, taxes and fees as may be directly attributable (as certified by the Comptroller of the Virgin Islands) to the importation of petroleum products until January 1, 1982. *Provided*, That any other retained costs not heretofore remitted pursuant to the Act of August 18, 1978, shall be immediately remitted to the Treasury of the Virgin Islands notwithstanding any other provision of law)."

92 Stat. 487

Repeal

93 Stat. 122
48 USC 1642a
48 USC 1641 note

(b) The paragraph entitled "U.S. Customs Service" involving the collection of customs duties in the Virgin Islands in the Act of July 25, 1979, is hereby repealed.

SEC. 404. Subsection (d) of section 4 of Public Law 95-348 (92 Stat. 487, 491) is hereby repealed.

Excise taxes
48 USC 1574 note

SEC. 405. Any excise taxes levied by the Legislature of the Virgin Islands may be levied and collected as the Legislature of the Virgin Islands may direct as soon as the articles, goods, merchandise, and commodities subject to said tax are brought into the Virgin Islands.

District Court Building property, transfer

SEC. 406. Not later than two years after the date of enactment of this Act, the Administrator of the General Services Administration shall convey, without consideration, all right, title, and interest of the United States in and to the property known as the former District Court Building (including the parcel of land upon which said building is located), 48 B Norre Gade, St. Thomas, Virgin Islands, to the Government of the Virgin Islands.

Bonds, issuance

SEC. 407. Subsection (f) of section 2 of the Act entitled "An Act to authorize the government of the Virgin Islands to issue bonds in anticipation of revenue receipts and to authorize the guarantee of such bonds by the United States under specified conditions, and for other purposes" (90 Stat. 1193; Public Law 94-392; 48 U.S.C. 1574(f)) is amended by striking out the last sentence and inserting in lieu thereof the following language: "No commitment to guarantee may be issued by the Secretary, and no guaranteed but unobligated funds may be obligated by the government of the Virgin Islands after October 1, 1984. After October 1, 1984, any unobligated proceeds of bonds or other obligations issued by the government of the Virgin Islands pursuant to this section shall be repaid immediately by the government of the Virgin Islands to the lenders with the agreed upon interest. Should there be any delay in the government of the Virgin Islands' making such repayment, the Secretary shall deduct the requisite amounts from moneys under his control that would otherwise be paid to the government of the Virgin Islands under section 28(b) of the Revised Organic Act of the Virgin Islands.".

26 USC 7652

TITLE V—AMERICAN SAMOA

Government comptroller, salary.
48 USC 1668

SEC. 501. The salary and expenses of the government comptroller for American Samoa shall be paid from funds appropriated to the Department of the Interior.

Customs duties collection
48 USC 1668

SEC. 502. The Secretary of the Treasury shall, upon the request of the Governor of American Samoa, administer and enforce the collection of all customs duties derived from American Samoa, without cost to the government of American Samoa. The Secretary of the Treasury, in consultation with the Governor of American Samoa, shall make every effort to employ and train the residents of American Samoa to carry out the provisions of this section. The administration and enforcement of this section shall commence October 1, 1960.

TITLE VI—MISCELLANEOUS

48 USC 1469a.

SEC. 601. Title V of the Act of October 15, 1977, entitled "An Act to authorize certain appropriations for the territories of the United States, to amend certain Acts relating thereto, and for other purposes" (91 Stat. 1159) shall be applied with respect to the Department of the Interior by substituting "shall" for "may" in the last sentence of subsection (d), and adding the following sentence at the end of subsection (d): "Notwithstanding any other provision of law, in the case of American Samoa and the Northern Mariana Islands any department or agency shall waive any requirement for local matching funds under $100,000 (including in-kind contributions) required by law to be provided by American Samoa or the Northern Mariana Islands.".

SEC. 602. (a) Any amount authorized to be appropriated for a fiscal year by this Act or an amendment made by this Act but not appropriated for such fiscal year is authorized to be appropriated in succeeding fiscal years.

(b) Any amount appropriated pursuant to this Act or an amendment made by this Act for a fiscal year but not expended during such fiscal year shall remain available for expenditure in succeeding fiscal years.

U S Government services, facilities, and equipment
48 USC 1469c

SEC. 603. To the extent practicable, services, facilities, and equipment of agencies and instrumentalities of the United States Government may be made available, on a reimbursable basis, to the governments of the territories and possessions of the United States and the Trust Territory of the Pacific Islands. Reimbursements may be credited to the appropriation or fund of the agency or instrumentality through which the services, facilities, and equipment are provided. If otherwise authorized by law, such services, facilities, and equipment may be made available without reimbursement.

SEC. 604. Any new borrowing authority provided in this Act or authority to make payments under this Act shall be effective only to the extent or in such amounts as are provided in advance in appropriation Acts.

Nuclear fuel or radioactive waste transportation and storage Report to Congress
48 USC 1491

SEC. 605. (a) Prior to the granting of any license, permit, or other authorization or permission by any agency or instrumentality of the United States to any person for the transportation of spent nuclear fuel or high level radioactive waste for interim, long-term, or permanent storage to or for the storage of such fuel or waste on any territory or possession of the United States, the Secretary of the Interior is directed to transmit to the Congress a detailed report on the proposed transportation or storage plan, and no such license, permit, or other authorization or permission may be granted nor may any such transportation or storage occur unless the proposed transportation or storage plan has been specifically authorized by Act of Congress. *Provided*, That the provisions of this section shall not apply to the cleanup and rehabilitation of Bikini and Enewetak Atolls.

"Territory or possession"

(b) For the purpose of this section the words "territory or possession" include the Trust Territory of the Pacific Islands and any area not within the boundaries of the several States over which the United States claims or exercises sovereignty.

Definitions

SEC. 606. (a) Section 8 of the Act of March 2, 1917 ("Jones Act"), as amended (48 U.S.C. 749), is amended by adding the following after the last sentence thereof: "Notwithstanding any other provision of law, as used in this section (1) 'submerged lands underlying navigable bodies of water' include lands permanently or periodically covered by tidal waters up to but not above the line of mean high tide, all lands underlying the navigable bodies of water in and around the island of Puerto Rico and the adjacent islands, and all artificially made, filled in, or reclaimed lands which formerly were lands beneath navigable bodies of water; (2) 'navigable bodies of water and submerged lands underlying the same in and around the island of Puerto Rico and the adjacent islands and waters' extend from the coastline of the island of Puerto Rico and the adjacent islands as heretofore or hereafter modified by accretion, erosion, or reliction, seaward to a distance of three marine leagues; (3) 'control' includes all right, title, and interest in and to and jurisdiction and authority over the submerged lands underlying the harbor areas and navigable streams and bodies of water in and around the island of Puerto Rico and the adjacent islands and waters, and the natural resources underlying such submerged lands and waters, and includes proprietary rights of ownership, and the rights of management, administration, leasing, use, and development of such natural resources and submerged lands beneath such waters."

(b) Section 7 of the Act of March 2, 1917 ("Jones Act"), as amended (48 U.S.C. 747), is amended by adding the following after the last sentence thereof: "Notwithstanding any other provision of law, as used in this section 'control' includes all right, title, and interest in and to and jurisdiction and authority over the aforesaid property and includes proprietary rights of ownership, and the rights of management, administration, leasing, use, and development of such property."

SEC. 607. (a) The first section of the Act entitled "An Act to place certain submerged lands within the jurisdiction of the governments of Guam, the Virgin Islands, and American Samoa, and for other purposes", approved October 5, 1974 (48 U.S.C. 1705), is amended by adding at the end thereof the following new subsection:

Mineral deposits, conveyance of U.S. rights, title, and interest.

"(d)(1) The Secretary of the Interior shall, not later than sixty days after the date of enactment of this subsection, convey to the governments of Guam, the Virgin Islands, and American Samoa, as the case may be, all right, title, and interest of the United States in deposits of oil, gas, and other minerals in the submerged lands conveyed to the government of such territory by subsection (a) of this section.

"(2) The conveyance of mineral deposits under paragraph (1) of this subsection shall be subject to any existing lease, permit, or other interest granted by the United States prior to the date of such conveyance. All rentals, royalties, or fees which accrue after such date of conveyance in connection with any such lease, permit, or other interest shall be payable to the government of the territory to which such mineral deposits are conveyed.".

(b) Subsection (c) of the first section of such Act (48 U.S.C. 17[illegible]c)) is amended by inserting "subsection (a) or (b) of" after "pursuant to".

SEC. 608. The following Acts are hereby amended as follows:

(a) In the Act of October 15, 1966 (80 Stat. 915), as amended (16 U.S.C. 470a-1):

16 USC 470a

(1) amend subsection 101(a) in paragraph (2) by deleting "and" at the end thereof and, in paragraph (3) by deleting "Trust." and inserting in lieu thereof "Trust; and".

(2) amend subsection 101(b) by deleting "and" after "American Samoa," and by changing the period at the end of the paragraph to a comma and inserting "and the Commonwealth of the Northern Mariana Islands.".

16 USC 470i

(3) amend subsection 212(b) by changing "Senate Committee on Interior and Insular Affairs." to "Senate Committee on Energy and Natural Resources.".

(b) In the Act of June 27, 1960 (74 Stat. 220), as amended (16 U.S.C. 469):

16 USC 469a-3

(1) amend subsection 6(c) by deleting "Interior and Insular Affairs Committee of the United States Congress" and by inserting in lieu thereof "Committee on Interior and Insular Affairs of the House of Representatives and Committee on Energy and Natural Resources of the Senate".

"State."
16 USC 469e-1

(2) after section 7, add the following new section:

"SEC. 8. As used in this Act, the term 'State' includes the several States of the Union, the District of Columbia, the Commonwealth of Puerto Rico, the Virgin Islands, Guam, American Samoa, the Trust Territory of the Pacific Islands, and the Commonwealth of the Northern Mariana Islands.".

16 USC 460l-3

(c) In the Act of May 28, 1963 (77 Stat. 49; 16 U.S.C. 460l-3) amend section 4 by deleting "and American Samoa." and by inserting in lieu thereof "American Samoa, the Trust Territory of the Pacific Islands, and the Commonwealth of the Northern Mariana Islands.".

Approved March 12, 1980.

LEGISLATIVE HISTORY

HOUSE REPORT No. 96-120 (Comm. on Interior and Insular Affairs)
SENATE REPORT No. 96-467 (Comm. on Energy and Natural Resources)
CONGRESSIONAL RECORD:
Vol. 125 (1979): May 7, considered and passed House.
Vol. 126 (1980): Feb. 7, considered and passed Senate, amended.
Feb. 26, House concurred in Senate amendment with amendments.
Feb. 28, Senate concurred in House amendment.
WEEKLY COMPILATION OF PRESIDENTIAL DOCUMENTS:
Vol. 16, No. 11 (1980): Mar. 12, Presidential statement.

APPENDIX D

Summary of Loma Linda University Working Contract

BACKGROUND

Public Law 96-205 directed the Secretary of the Interior to submit to the Congress of the United States by January 1, 1981, a health plan for the peoples of Enewetak, Bikini, Rongelap, and Utirik, and for the peoples of such other atolls as may be found to be or to have been exposed to radiation from the nuclear weapons testing program carried out in the Marshall Islands during the late 1940's and the 1950's. The health plan is to provide for a program of medical care and treatment and for environmental research and monitoring for any injury, illness, or condition directly or indirectly resulting from the nuclear weapons testing program. It is to be comprehensive and provide for primary, secondary, and tertiary care with special emphasis upon the biological effects of ionizing radiation.

During the nuclear weapons testing program Enewetak and Bikini were used as test sites. Rongelap and Utirik each received substantial amounts of radioactive fallout in 1954 and their populations were evacuated for a period of time and have since been subject to continuing medical monitoring and follow-up. Other atolls in the Marshalls are believed to have received varying amounts of allout and may have received sufficient exposure to qualify their peoples for health care under the authority of Public Law 96-205.

Following interagency discussions and meetings on August 4 and August 6 with other Federal agencies, and representatives of the four named atolls and the Marshall Islands Government, the Department of the Interior on August 8 issued a request for proposals to assist the Secretary in developing such a health plan.

ARTICLE I Objectives: The objective of this contract is to provide the Secretary of the Interior with analyses of health plan options for the Marshall Islands in accordance with Section 102 of Public Law 96-205.

ARTICLE II Scope of Work:

A. The Contractor shall furnish all qualified personnel, facilities, equipment, supplies, and all other items necessary to perform a study and report on options for health care for the Marshall Islands in accordance with its proposal submitted September 3, 1980, with an addendum submitted September 17, 1980, both of which are incorporated herein by reference and made a part hereof.

B. Each of the options to be covered in the report will include a study of and recommendations concerning comprehensive health care for the peoples of Enewetak, Bikini, Rongelap, and Utirik atolls.

C. For each analysis relative to the four above named atolls and any others that may be found to be or to have been exposed to radiation from the nuclear weapons testing program, estimates will be provided with respect to carrying out the health program directly through United States agencies or organizations. This analysis will include estimates for carrying out the health program through or in conjunction with the health care agencies of the Marshall Islands Government.

D. The contractor will submit health plans according to the following outline (Primary, Secondary, Tertiary).

1. Comprehensive care for the peoples of Rongelap, Utirik, Bikini and Enewetak.

2. Comprehensive care as in 1, plus comprehensive care for peoples of other affected atolls of Kikiep, Mejit, Ailuk, Wotho, Wotje, Ujae, Lae.

3. Comprehensive care as in 1 & 2 above, plus comprehensive care for all other atolls of the Marshall Islands.

E. Reference to RFP and Loma Linda University Proposal

RFP	LLU	Scope of Work
A+	A	1 = Comprehensive (Pri Sec Ter) on 4 (7) Atolls. Secondary care on Ebeye, Majuro
D limited to radiation	D	2 = 1 as above plus comprehensive care for the peoples of other affected atolls
B	B	3 = 1 + 2 as above plus comprehensive care for the peoples of all other atolls
C	C	Comprehensive care as in 1 above and primary care for all other atolls; subsumed by 1 and 3 above.

F. Assumptions

1. It is medically impossible, at the primary care level, to separate most injuries, illnesses or conditions caused by direct or indirect radiation effects from other health care needs.

2. Any expansion of secondary and tertiary care, for ethical and economic reasons, should be available to all other Marshallese.

3. It is anticipated that for secondary level care to be adequate and cost effective, it will need to be located on Ebeye and Majuro.

ARTICLE III Methodology

This work will be accomplished by an analyses of available background data, a series of on-site surveys, discussion with current health care providers, and evaluation of health care needs as outlined in the Loma Linda University proposal on pages 4 to 12 and addendum of September 17, 1980, on pages 2-7.

ARTICLE IV Deliverables

A. Letter Progress Reports

The contractor shall prepare and submit two letter progress reports not to exceed five pages in length. Each of these reports shall:

1. Identify project status, including an estimation of percentage completion.

2. Report expenditures in period of report and cumulatively and explain deviations from estimated expenditure levels; and

3. Summarize work performed; accomplishments; and problems encountered during period of report; plans for succeeding period; and actions requested for the Department of the Interior.

B. Draft Report

The contractor shall submit a draft report in six (6) copies as indicated in A above. This report should include the results of all the research and any findings. Submission of this draft report should mark the completion of the major elements of the contract, except incorporation of the Department's comments and preparation of the final report. The report will be handcarried to DOI for discussion on November 19, 1980.

Delivery: Six (6) weeks after contract award.

C. Final Report

After receipt of the department's comment on the draft report, the contractor shall prepare and submit the final report to the Department in six copies as indicated in A above on December 3, 1980.

ARTICLE V Period of Performance

The contractual period of performance shall begin on October 3, 1980; and all work and services required hereunder shall be completed on or before December 3, 1980.

APPENDIX E

Loma Linda University Contract Personnel

APPENDIX E

LOMA LINDA UNIVERSITY CONTRACT TEAM

Detlor, Lyn, B.A. - Vice-President Adventist Health Services West

Expertise in logistics of supply management

Elick, John, Ph.D. - Professor & Chairman, Department of Antrhopology, LLU

Expertise in Anthropology and Sociology

Ford, Robert, M.A., M.P.H. - Assistant Professor of Health Sciences, LLU

Expertise in International Health Planning and Cultural Geography

Gaede, Donn, B.S., M.P.H. - Instructor in Health Sciences, LLU

Expertise in Health Administration

Gaede, Jackie, R.N.

Expertise in Nursing

Haddad, Anees, Ph.D. - Professor & Chairman, Division of Behavioral Sciences, LLU

Expertise in Anthropology and Sociology

Hart, Richard, M.D., Dr.P.H. - Associate Professor & Chairman, Department of Health Sciences, LLU

Expertise in International Health and Health Auxillary Manpower Evaluation

Havens, Doug, M.A. - Assistant Professor, Department of Agriculture, LLU

Expertise in International Agriculture and Foods

Heidinger, Harvey, M.D., M.P.H. - Assistant Professor of Health Sciences, LLU

Expertise in Rural International Health

Horsely, June, M.S.W. - Associate Professor Chairperson Social Work, LLU

Expertise in Sociology

Hoyt, Fred, Ph.D. - Professor & Chairman, History Department and Director Division of Humanities, LLU

Expertise in Sociology

Kirk, Gerald, M.D. - Associate Professor Radiology & Chief of Nuclear Radiology, School of Medicine, LLU

Expertise in Nuclear Medicine

Maynor, Janice, B.A. - Secretary, Department of Health Sciences, LLU

Expertise in secretarial & support services for International Health Programs

Moore, Nancy, B.S. - Health Administration Student, LLU

Expertise in Health Administration Data Collection & Analysis

O'Bryan, Linda, B.S.

Expertise in Sociology

O'Bryan, Rick, M.P.H.

Expertise in International Health Science

Pelton, Ray, B.A. - Associate Chairman Department of Health, General Conference of Seventh-day Adventists, Washington, D.C.

Expertise in International Hospital Administration

Rieger, Roger, M.B.A., J.D. - Assistant Professor of Health Administration, LLU

Expertise in Health Administration and Health Law

Snow, Gerald, Ph.D., M.P.H.

Expertise in Environmental Health

Thomas, Merlin, M.D.

Expertise in Medical Care

Willard, Rodney, M.D. - Associate Professor Clinical Pathology, School of Medicine, LLU

Expertise in Clinical Laboratory Science and Radio Communications

In addition to those listed above there were a large number of personnel actively engaged in researching background data, collecting informational data, developing survey instruments, and analyzing information and data, who did not participate in actual field activities.

APPENDIX F

Guam Micronesia Seventh-day Adventist Mission Contract with the Marshall Island Government for Providing Health Care

AGREEMENT FOR MANAGEMENT OF HEALTH CARE DELIVERY
IN THE MARSHALL ISLANDS

This Agreement made this _____ day of _____, 1980, between the Government of the Marshall Islands (Government) and the Seventh-day Adventist Mission, Guam-Micronesia (Contractor):

The Government desires that the management and control of those activities and services presently administered by the Ministry of Health Services of the Marshall Islands (hereinafter, Ministry) be discharged by an organization with experience and competence in the field of health services. The Contractor is willing to provide the management services desired by the Government so long as the provision of such services requires no additional funding from the Contractor.

Article 1. Management and Staffing.

A. The Contractor agrees to manage and staff the existing function, services, and activities currently performed by the Ministry, set forth and described in Schedule A1 attached hereto and incorporated herein, and subject to the staffing requirements set out below, and subject to such exceptions which might arise concerning special grant or project funds set forth and described in Schedule A2 attached hereto and incorporated herein.

B. The Contractor shall manage the Health Services

system by assuming control and management over all existing employees of the Ministry and by assuming management and control of all equipment, supplies, materials and medicines currently held by the Ministry and by utilizing equipment, facilities, real and personal property and vehicles currently owned, controlled or utilized by the Government as part of the Ministry.

C. In addition to maintaining present professional and administrative staffing levels, The Contractor shall provide a Health Services Administrator, a Medical Director (or, Chief of Staff), a Director of Nurses, and two additional physicians in residence. In addition to the above personnel and the services set forth in Schedules A1 and A2, the Contrator shall provide the services and personnel as set forth and described in Schedule B attached hereto and incorporated herein. It is expressly understood, however, that the staffing level to which the Contractor is committed by this C represents a standard which the Contractor is committed to maintain to the maximum feasible extent, but shall not be construed as a minimum staffing level required to be maintained by the Contractor at all times.

(There is no page three)

Article 2. Term of the Agreement - Date of Inception - Transition - Renewal.

A. The term of this Agreement shall be until September 30, 1982.

B. The Date of Inception shall be the date on which the Contractor formally assumes management of the health care system, and, unless mutually agreed by the parties to be otherwise, shall be the first Sunday after which all of the following have been accomplished:

1 - a Certificate of Need shall have been issued with respect to Contractor operations hereunder by the administrative agency having competence to issue such Certificate;

2 - the Health Services Administrator shall have assumed responsibility and commenced full-time management of the health care system;

3 - those steps agreed by the parties to be prerequisites to inception of the agreement in the Transition Memorandum shall have been completed.

C. The parties shall, contemporaneous with the making of this Agreement or as soon thereafter as reasonably practical, and no later than 30 days thereafter in any event, make and enter into a Transition Memorandum, specifically setting forth the steps necessary to assumption by the Contractor of management of the health care system, establishing a timetable for execution of those steps, and defining specific prerequisites necessary to be completed prior to the date of inception of the agreement.

D. This Agreement shall be subject to renewal for successive terms of five years subsequent to the initial term. The parties hereby agree to conduct a renewal conference at a mutually agreed time six to nine months prior to the expiration date of the initial term or any subsequent term, and at that conference to advise one another in writing of their intention with respect to either renewal or termination. In the event the Contractor advises the Government of its intent to terminate at the renewal conference or at any other time, Contractor hereby pledges to make its best effort to assist the Ministry and the Government with respect to transition to either management by another contractor or assumption by the Ministry of direct management and control of the health services system. Except for provisions for termination for cause as set forth in Article _____ below, the agreement shall not be subject to termination except at the expiration of the terms provided hereunder.

Article 3. Funding.

A. All funds appropriated by the Nitijela for services, functions and activities as set forth in Schedules A1 and A2 shall be released to the Contractor on a letter of credit system on a quarterly basis in advance, except in those cases where the allocation of Federal Funds to the Marshall Islands has been delayed, in which case the Government and the Contractor shall determine a payment schedule of funds reflecting availability of such funds in the Marshall Islands General Fund. The specific details of operation of the system of release of funds hereunder shall be set forth in a separate funding memorandum between the Contractor and the Ministry of Finance of the Government, subject to agreement also by the Ministry of Health Services, which memorandum shall be appended to and become part of this agreement.

B. The Contractor shall not incur any expenses in excess of the amounts which the Government agrees to pay without first obtaining the express approval of the Cabinet through the Ministry of Health for such excess expenditure. Should there be approval of such excess expenditure the Government shall reimburse the Contractor for such expenditures on such terms as the Contractor and the Government may agree.

C. The Contractor and the Government shall cooperate to the maximum feasible extent with respect to obtaining and management of continuing and new grants. The parties expressly

contemplate that the Ministry shall continue to maintain, separate from the Contractor, a fully staffed Office of Secretary of Health Services, and the Contractor shall coordinate with the Ministry with respect to grants through the Secretary of Health Services. To the maximum feasible extent, application for grants and their administration shall be by and in the name of the Contractor. Where, however, applicable law or regulations would preclude grant application or administration by the Contractor, the Secretary of Health Services shall undertake those steps necessary and appropriate to securing and managing of such grant. The Contractor shall advise the Government, through the Office of the Secretary, as to the existence of and desireability of applying for such grants and shall assist the Government in the preparation of grant application.

In the event the Contractor notifies the Government that a certain grant is necessary for the delivery of health care services, the Government shall make its best efforts to make grant applications as necessary where the Contractor is effectively precluded from so doing. Failure to obtain such grants after application is made shall not be grounds for terminating the agreement.

D. The Contractor shall establish and maintain a Finance Office within its organization which shall be responsible for the collection, maintenance, disbursal and accounting of funds paid to or received by the Contractor in its adminis-

tration of the health services system. The Contractor's Finance Office shall maintain an accounting system according to standard and accepted accounting practices which shall be approved by the Secretary of Finance of the Government. The Contractor's Finance Office shall submit monthly to the Ministry, the Secretary of Finance and the Cabinet, financial statements as required by the Government. The Contractor shall be required to take an active part in the Marshall Islands budget process and shall coordinate with the Secretary of Health Services in discharging its duties in this regard. Recognizing, however, the specific oversight responsibilities of the Office of Secretary of Health Services with respect to the Contractor, no Contractor employee or office having responsibility for or involvement in the Contractor's Finance Office shall be simultaneously employed by the Office of Secretary of Health Services.

The Contractor shall be audited regularly by the Marshall Islands Auditor General. The Contractor shall also be subject to audit by the Ministry and/or the Cabinet.

E. All funds allocated to the Contractor unexpended by or unobligated by the Contractor at the end of the fiscal year, shall remain with the Contractor. Funds disbursed by the Government and retained by the Contractor shall be exclusively expended for or applied to those activities of the Contractor pursuant to this contract. Upon termination of this Contract

for any reason, all funds allocated and disbursed to the Contractor under the Contract which are unobligated or unexpended shall be returned to the Government within 60 days. In the event of termination all patient fee proceeds in the hands of the contractor pursuant to this Contract shall be treated as Government allocations and considered as being on the same basis as funds allocated and disbursed to the Contractor pursuant to the provisions of this E.

F. Increased funding may be provided by the Government after a request has been made by the Contractor or at the sole instance of the Government, but failure to provide increased funding upon request of the Contractor shall not, in and of itself, be a cause for termination of the agreement. The funding made available to the Contractor pursuant to this agreement must be appropriated by the Marshall Islands Nitijela or disbursed as otherwise authorized by law.

Failure, however, of the Nitijela to authorize and appropriate funding to the Contractor substantially at a level consistent with the level of funding extant at the end of the first year after the date of inception or conclusion of the first full Marshall Islands fiscal year completed after the date of inception, whichever occurs later, shall constitute a prima facie cause for termination of the agreement by the Contractor.

The Contractor does not, however, rely on continued funding beyond any fiscal year for which an Appropriation Act has been passed and shall not be able to assert a claim for any type of damage arising out of or caused by the failure of the Nitijela to appropriate moneys.

G. The parties agree that as soon as reasonably practical, and, in any event no later than completion of the transition period they shall agree on the level of funding for all activities of the Ministry at the date of execution of this agreement. Schedule ____ attached and incorporated herein sets forth the mutual understanding of the parties with respect to funds presently being expended but shall not be deemed conclusive or binding.

Article 4. Personnel.

A. All employees of the Public Service working in the Marshall Islands Ministry of Health on the date immediately preceding the assumption of management control by the Contractor shall be employed by the Contractor except for those instances where Federal Program Requirements prohibits such employment, in which case it is contemplated such employees shall become employees of the Office of Secretary of Health Services.

B. All personnel referred to in A above shall retain all benefits acquired during their employment in the Public Service and the Contractor's obligations for provision of benefits shall be the same or equivalent to those provided for those employees when they were in the Public Service. This provision shall apply specifically to accumulated leave time, and sick leave, insurance and retirement benefits.

C. During the transition period Contractor adopts as its regulations relating to personnel the regulations in force on the date of execution of the agreement as promulgated by the Marshall Islands Public Service Commission.

D. The Contractor and the Government well, during the transition period, mutually agree on permanent personnel regulations for employees of the Contractor, which shall take effect on the inception date of the agreement or as soon thereafter as possible.

(There is no page 12.)

Article 5. Religious Freedom.

A. No employee shall be discriminated against on account of his religious belief or practice or lack thereof.

B. The Contractor may, at its own expense, and without funds, assistance or support provided by Government, employ a Chaplain of the Seventh-day Adventist faith to render services as a Chaplain to persons treated in the health services system who desire the services of a Chaplain. Nothing herein shall be contrued to prevent clergy and religious practitioners of other faiths from access to the facilities of the health care system and patients being treated within the system.

(There is no page 14.)

Article 6. Supporting Activities

The several departments of the Government shall provide support services on the basis of the agreement between the Contractor and the Government set forth in Schedule D attached and incorporated herein.

Article 7. Training.

Contractor shall provide basic orientation programs and continuing education for employees of the health services system. Employee education programs shall be funded from the annual operating budget underwritten by Government, and may include, to the extent determined necessary by Contractor, visiting instructors and other specialists retained to achieve these training objectives.

Article 8. Management.

A. Contractor shall report to the Ministry of Health. On a quarterly basis Contractor shall furnish written reports to the Ministry which shall include statistical information on at least the following:

B. Subsequent to the submission of quarterly written reports pursuant to A above, Contractor shall meet with the Minister of Health and such other Cabinet committee or representatives as Government may choose to discuss the quarterly report and the overall administration of health services under the agreement.

C. There shall be an advisory board made up as follows:

> The Cabinet of the Marshall Islands shall appoint eight members; four shall be appointed from among Government employees and office holders; one of these shall be the Speaker of the Nitijela or his designee and one shall be the judicial office who is Marshallese holding the highest judicial office in the Marshall Islands or his designee. The terms of office initially for the Speaker or his designee and the judicial office or his designee shall be one year; the terms of office of the other two public sector members shall be initially two years; after completion of the initial terms all terms shall be for two years. The remaining four members shall be appointed by the Government, one of whom shall be a full-time clergy member, who shall serve an initial term of one year. After completion of initial terms, the terms of the four private sector members shall also be for two years.
>
> The Contractor shall designate the Health Services Administrator to be a member of the Advisory Board and shall, in addition, appoint a member from outside the Marshall Islands whose expense of participation shall be borne by the Seventh-day Adventist Guam-Micronesia Mission from non-contract funds.
>
> The Minister of Health shall be an additional member and Chairman of the Advisory Board.

D. The Secretary of Health Services shall provide permanent staffing and support to the Advisory Board provided under C above.

E. The Office of Secretary of Health Services shall provide for regular contract oversight and community input to the Contractor and the Contractor shall cooperate to the maximum extent with the Secretary of Health Services in discharge of this function.

F. It is the expectation of the parties that the function of health planning for the Government will continue to be discharged by the Ministry, through the Office of the Secretary of Health Services. The Contractor shall cooperate with and assist the Secretary of Health Services with discharge of planning responsibilities and shall furnish such data as the Secretary of the Secretary's designee may require from time to time with respect to health planning.

G. It is the expectation of the parties that the Office of Secretary of Health Services will establish standards for evaluation of health services available and the quality of health services delivered. These standards will, to the maximum feasible extent, be measurable and objective. The Contractor shall cooperate with and assist the Secretary with discharge of the Secretary's responsibilities with respect to standards for evaluation of availability and delivery of health services.

H. It is the expectation of the parties that the Office of Secretary of Health Services will establish and corporate an Office of Vital Statistics. The Contractor shall cooperate with and assist the Secretary with discharge of the Secretary's responsibilities with respect to vital statistics.

I. It is the expectation of the parties tha the Office of Secretary of Health Services will establish and maintain staff with respect to assessment of environmental health questions and for supervising compliance of Ministry activities with applicable environmental law and standards. The Contractor shall cooperate with and assist the Secretary with discharge of the Secretary's responsibilities with respect to environmental health and compliance functions.

(There is no page 21.)

Article 9. Fees for Services.

A. Services shall be provided to all persons on a fee for service basis, established according to schedule F attached and incorporated herein, provided that no person shall be denied access to services because of inability to pay for all or part of such services. The determination whether or not a particular person can afford all or part of such services shall be initially within the discretion of the contractor, provided however, that the Office of the Secretary of Health Services and the Contractor shall mutually agree on guidelines for financial eligibility for recipt of services on a discounted or no-fee basis. Where a recipient or would-be recipient of services wishes review of the Contractor determination with respect to eligibility for discounted or no-fee services, there shall be a right of such review according to procedures established by the Office of the Secretary of Health Services, and the ultimate determination of eligibility shall rest with the Ministry of Health Services according to such procedures as it may adopt.

Article 10. Certificate of Need.

The Contractor shall assist, insofar as it has the resources and facilities to do so, in the obtaining of a Certificate of Need uner the Marshall Islands Certificate of Need Act of 1979.

Article 11. Prodúrement.

Contractor may, at its discretion, purchase furniature, equipment, pharmaceutical products, food, or other supplies from any vendor, manufacturer, wholesaler, or distributor designated by Contractor. Contractor may negotiate such purchase from or through any entity that may be owned or affiliated with the Seventh-day Adventist Church providing that Contractor or any employee of Contractur does not receive any direct or indirect financial benefit and that any vaings through group purchasing be reserved for the exclusive benefit of the health services system. Contractor will seek the most competitive terms available to the product quality standards specified by Contractor.

Article 12. Cliam, Insurance and Indemnification.

A. The Contractor shall give the Government or its representatives immediate notice of any suit or action filed, and prompt notice of any claim made again the Contractor or a Contractor employee or agent arising out of the performance of the agreement. The Contractor shall furnish immediately to the Government copies of all pertinent papers received by the Contractor. If the amount of the liability claimed exceeds the amount of coverage, the Contractor shall authorize representatives of the Government to collaborate with counsel for the Contractor's if any, in settling or defending such claim. If the potential liability is not covered by insurance the Contractor, may, at its own expense, be associated with the representatives of the Government in settling or defense of any such claim or litigation.

B. The Contractor shall exert its best efforts to obtain and maintain throughout the term of the agreement the types and amounts of insurance set forth in Schedule C attached and incorporated herein. Copies of the policies held pursuant to this B shall be provided to the Minister of Health Services and the Attorney General.

C. The Contractor shall hold harmless and indemnify the Government of the Marshall Islands and such other governmental agencies as the parties may agree from any and all claims and liabilities arising out of the delivery of health services, or maintenance of real and personal property during the term of this agreement, including all claims which may be made by patients, employees, permitees, visitors, or third parties. This C shall apply to all claims arising out of transactions, events or occurrences during the term of this agreement regardless of when and how the claim is actually made, asserted or filed.

Nothing hereunder shall be construed to require the Contractor to hold the Government harmless or indemnify the Government from claims or judgements against which insurance cannot be obtained on reasonable commercial terms.

In the event Contractor is in fact unable to obtain coverage it shall so notify the Government immediately.

Article 13. Property.

A. The facilities, equipment, supplies, vehicles, medications, and real and personal property utilized by the Contractor in discharge of this agreement shall remain at all times the property of the Government.

B. Any property or equipment acquired by the Contractor in discharge of its obligations pursuant to this Agreement shall become the property of the Government.

C. During the transition period the Contractor and the Ministry shall jointly conduct a physical inventory of all assets of the Ministry, including real and personal property, facilities, equipment, supplies, vehicles and medications and any and all other things owned or utilized by the Government as part of the health care system. Specific detail for conduct of this inventory shall be as set forth under the Transition Memorandum. The completed inventory shall be submitted to the Government.

D. On termination the Ministry and/or Government may accept the Contractor's then existing data with respect to inventory or may, at the discretion of the Government, request and receive an inventory on the same basis as provided under C above.

Article 14. Arbitration.

In the event of the parties to agree with respect to interpretation or management of the Agreement or any portion thereof, dispute resolution shall be by binding arbitration. If either party is unable to satisfactorily resolve a dispute, it shall so advise the other party in writing of that fact and of its intent to submit the matter to arbitration for resolution. No matter shall be subject to arbitration until ten full days after the giving of such written notice to seek arbitration.

In the event of a notice, given after the expiration of the ten day period of intent to arbitrate, each party shall designate an arbitrator and the two arbitrators so designated shall designate a third member of the arbitration panel. If there shall be a failure to either appoint an arbitrator by a party of the members appointed to agree on a third member, the party seeking arbitration may apply to the court of highest jurisdiction in the Marshall Islands at the trial level, the presiding judge of which shall then make such appoints as are necessary to facilitate arbitration of the dispute.

The arbitration panel shall conduct the arbitration according to such rules of procedure and evidence as it shall deem appropriate and shall render a determination of the dispute in writing not less than 21 days after submission of the dispute to the panel. The judgement of the arbitration panel shall have the effect of a final judgment and shall be entitled to be

entered as such and enforced as such by the courts of the Marshall Islands and shall be not subject to judicial review (except as to jurisdiction) or appeal.

Article 15. Amendment.

This Agreement shall be subject to Amendment by mutual agreement of the parties. On the anniversary of the inception date, or such other date as the parties may agree, the Minister of Health Services, the Secretary of Health Services and the Health Services Administrator employed by Contractor shall meet to review the Agreement and to discuss amendments, if any, desired by the parties.

Article 16. Change in Political Status - Applicable Law. Marshallese Custom and Tradition

A. It is expressly understood that the Marshall Islands are presently a part of the Trust Territory of the Pacific Islands and that negotiations are in progress toward termination of that Trusteeship. Change in political status of the Marshall Islands shall not operate to modify, alter or amend this agreement or to relieve either party of any duty or obligation hereunder.

B. This agreement shall be construed according to the law of the Marshall Islands.

C. The Contractor hereby agrees to take Marshallese custom and tradition into account in its administration of the health services system and to respect the same. No employee shall be compelled by reason of employment by the Contractor to do any act or refrain from doing any act which would violate Marshallese custom and tradition. On questions of custom and tradition the Contractor, as the party responsible for management and control of the health services system, shall have the same right as any department or agency of the Government to seek the advice of the Traditional Rights Court of the Marshall Islands on questions of custom and tradition.

Agreed to this _____ day of February, 1980 at Majuro, Marshall Islands.

GOVERNMENT OF THE MARSHALL ISLANDS

By:_____

SEVENTH-DAY ADVENTIST GUAM-MICRONESIA MISSION

By:_____

SCHEDULE A1

U.S. Grant Funded Services of Public Health Services

#A980. Majuro & A983. Ebeye

.111 Sanitation

.112 Administration
In-patient services
Out-patient services
Food Services
Lab/Pharmacy
Surgery
Rehab/Physiotherapy
Medical Records
Training
Laundry
Housekeeping
X-ray

.113 Medical Referrals

.114 Einvironmental Health

.115 Dental Services

.116 Medical Supplies/Equipment

Representation on Micronesia
Health Coordinating Council

U.S. Special Grants Funded Services

F9A51B801
Marshall Islands Homemaker/Home Health
Geriatric Health
general
asthma, arthritis, hypertension

1XSCSEP
Old Age Employment

F9A44B800
Marshall Islands Maternal Health
clinics: pre-natal
post-natal
well-baby

F9A46A800
Marshall Islands Public Health
Health Education
Immunizations
Arthritis, Diabetes, Hypertension
T.B., V.D.
Family Planning

F9002A8001
CETA Program

SCHEDULE B

Contractor - provided services and personnel

External Sources of Medical Help

Vital Statistics

SCHEDULE D

Support Services by the Government

Public Works
- Building Maintenance
- Housing
- Sanitation - Disposal
- Utilities

Public Safety
- Ambulance Driver
- Ambulance Maintenance

Hospital feeds prisoners in an exchange of services

Education
- Vocational Education

Communications
- Cables, phones, radio

SCHEDULE F

Fees.

(to be determined and established by contractor and by the Government of the Marshall Islands)

Collections by Contractor

LETTER AGREEMENT WITH RESPECT TO CERTAIN SCHEDULES, REPORTING CRITERIA AND MISCELLANEOUS DOCUMENTATION

By this letter Agreement, entered into this 14th day of February, the parties hereby agree that Certain Schedules, Reporting Criteria and Miscellaneous Documentation referred to in the Agreement for Management of Health Care Delivery in the Marshall Islands have not, as of the time of execution of the Agreement, been completed in a form satisfactory for inclusion in the Agreement.

It is hereby agreed and understood that, notwithstanding the lack of completion of these materials, the basic Agreement is ready for execution by the parties.

Accordingly, the parties hereby agree that these materials, set forth below, shall be placed in final form during the transition period and appended to the Agreement by and upon mutual agreement of the parties.

The Schedules, Reporting Criteria and Miscellaneous Documentation to which this Letter Agreement applies are as follows:

1. Schedule C - Insurance coverages

2. Statistical information for quarterly reports under Article 8.

3. Schedule G, funds presently expended under Article G.

4. Schedule D expense of support services,

Done this 14th day of February, 1980 at Majuro, Marshall Islands:

GOVERNMENT OF THE MARSHALL ISLANDS

By:_____

GUAM-MICRONESIA SEVENTH-DAY ADVENTIST MISSION

By:_____

APPENDIX G

Survey Forms Used

Atoll Name _____ Island Name _____

Clinic Name _____ Clinic Location _____

Interviewer Name _____

QUESTIONNAIRE FOR CLINIC KEY HOLDER

1. _____ What is the total number of health workers in the clinic serving area including clinic personnel, traditional healers, midwives, veterinarians, dentists, etc. Include clinic key holder and other clinic personnel.

2. Who conducts deliveries in the clinic serving area? (Check as many as apply below and report the number of individuals of each type of health worker who conduct deliveries?)

	Number of Health Workers Who Do Deliveries	
[ ]	_____	Clinic Personnel
[ ]	_____	Traditional Midwives
[ ]	_____	Others (please specify) _____
		_____

For each health worker in the clinic serving area, record the following information. Start with the clinic key holder.

INFORMATION ON CLINIC KEY HOLDER

3. _____ Primary occupation of clinic key holder.

4. Does this person work in the clinic?

[ ] Yes
[ ] No

5. _____ Hours per week spent in clinic work.

6. _____ Age

7. Sex:

[ ] Male
[ ] Female

8. _____ Years of education.

9. _____ Years of medical training or health training.

10. _____ Highest degree or certificate obtained in medical field.

11. _____ Place of medical training.

12. _____ Years of experience in health work.

13. How well would this person cooperate with clinic workers?

[ ] Good
[ ] Fair
[ ] Poor

14. How well is this person accepted by the people?

[ ] Good
[ ] Fair
[ ] Poor

OTHER HEALTH WORKERS

PERSON #2

15. _____ Primary occupation.

16. Does this person work in the clinic?

[ ] Yes
[ ] No

17. _____ Hours per week spent in clinic work.

18. _____ Age

19. Sex:

[ ] Male
[ ] Female

20. _____ Years of education.

21. _____ Years of medical training or health training.

22. _____ Highest degree or certificate obtained in medical field.

23. _____ Place of medical training.

24. _____ Years of experience in health work.

25. How well would this person cooperate with clinic workers?

[ ] Good
[ ] Fair
[ ] Poor

26. How well is this person accepted by the people?

[ ] Good
[ ] Fair
[ ] Poor

CONTINUE ON BACK IF MORE SPACE IS NEEDED

27. Is a clinic worker of either sex acceptable with the people?

[ ] Yes
[ ] No

28. If no, specify preferred sex:

[ ] Male
[ ] Female

OTHER HEALTH WORKERS

PERSON #3

_____ Primary occupation.

Does this person work in the clinic?

[ ] Yes
[ ] No

_____ Hours per week spent in clinic work.

_____ Age

Sex:

[ ] Male
[ ] Female

_____ Years of education.

_____ Years of medical or health training.

_____ Highest degree or certificate obtained in medical field.

_____ Place of medical training.

_____ Years of experience in health work.

How well would this person cooperate with clinic workers?

[ ] Good
[ ] Fair
[ ] Poor

How well is this person accepted by the people?

[ ] Good
[ ] Fair
[ ] Poor

PERSON #4

_____ Primary occupation.

Does this person work in the clinic?

[ ] Yes
[ ] No

_____ Hours per week spent in clinic work.

_____ Age

Sex:

[ ] Male
[ ] Female

_____ Years of education.

_____ Years of medical or health training.

_____ Highest degree or certificate obtained in medical field.

_____ Place of medical training.

_____ Years of experience in health work.

How well would this person cooperate with clinic workers?

[ ] Good
[ ] Fair
[ ] Poor

How well is this person accepted by the people?

[ ] Good
[ ] Fair
[ ] Poor

29. Would the people be willing for a male nurse to deliver babies?

[ ] Yes
[ ] No

30. Would the people accept family planning and sex education from a health worker of either sex?

[ ] Yes
[ ] No

31. If no, specify sex preference:

[ ] Males can do family planning and sex education for both sexes
[ ] Females can do family planning and sex education for both sexes
[ ] Must have male workers for male patients and female workers for female patients

32. _____ Number of people in clinic serving area

33. _____ Number of births per month in clinic serving area

34. _____ Number of deliveries per month at clinic

35. _____ Number of deaths per month in clinic serving area

36. Who records births and deaths? _____

37. Who determines cause of death? _____

38. Is this information recorded on a death certificate?

[ ] Yes
[ ] No

39. Where are records of births and deaths kept? _____

_____

40. What are the three most frequent types of clinic visits?

_____

_____

_____

Record approximate number of clinic visits per week for each of the following:

41. _____ Total visits per week on the average

42. _____ Infants under one year of age

43. _____ Children 1 - 5 years of age

44. _____ Children 6 - 15 years of age

45. _____ Young to middle age men

46. _____ Young to middle age women

47. _____ Old men

48. _____ Old women

49. _____ Number of children per week with diarrhea or vomiting

50. _____ Number of children per week with fever

51. _____ Number of children per week for well child care (immunizations, etc.)

52. _____ Number of pregnancy care visits per week

53. _____ Number of adults with fever

54. _____ Number of adults with gastrointestinal problems

55. _____ Number of accidents or fractures per week

56. _____ Number of chronic problems (arthritis pain, etc.)

57. _____ Number of other problems (please specify) _____

_____

_____

58. _____ How many times during the year do you have a medical emergency which you cannot take care of here?

59. Are you able to make radio contact for medical consultation in the event of a medical emergency?

[ ] Yes ——→ How long does it usually take before you are talking to a physician? _____ hours

[ ] No ——→ Why not?

[ ] Lack of reliable radio contact
[ ] Lack of available physician to contact
[ ] Other (please specify) _____

_____

60. Describe radio communication system:

[ ] None in clinic serving area
[ ] Two-way radio at clinic
[ ] Two-way radio at other location ——→ (please specify location)

_____

(please specify distance from clinic in kilometers) _____

61. Can the two-way radio contact Majuro or Ebeyi on a regular basis?

[ ] Yes
[ ] No

62. Are home visits conducted by clinic staff?

[ ] Yes ——→ How many times per month? _____
[ ] No

63. What means of transportation are used by people within the clinic serving area to reach the clinic? (Check as many as apply.)

[ ] Walking
[ ] Bicycle
[ ] Motorbike
[ ] Car
[ ] Boat
[ ] Other (please specify) _____

64. _____ How many persons were taken from the clinic to a hospital in the past twelve months?

65. What methods of transportation are available to take a patient to the nearest hospital?

_____

66. _____ What is the cost of transporting a person to the nearest hospital?

67. How long do you have to wait for a means of transportation to arrive to take someone to the hospital?

Minimum time: _____ hours _____ days

Maximum time: _____ hours _____ days

68. Once someone is on the way to the hospital, how long does it take to get there?

Minimum time: _____ hours _____ days

Maximum time: _____ hours _____ days

69. Are there certain times when a patient cannot be taken to the hospital because of weather conditions?

[ ] Yes
[ ] No

70. If yes, how many days per year? _____

71. If yes, during what months of the year? _____

72. Are there certain times when a patient cannot get to the clinic because of weather conditions?

[ ] Yes
[ ] No

73. If yes, how many days per year? _____

74. If yes, during what months of the year? _____

75. Describe the type of medical records kept, where they are kept and the accuracy and completeness of the medical records.

Type of record on each patient _____

Where record kept _____

Completeness of information _____

Accuracy _____

76. Please check which of the following items of information are kept on the medical record:

[ ] Reason for clinic visit
[ ] Medical diagnosis
[ ] Type of treatment given
[ ] Medications prescribed
[ ] Name of patient
[ ] Age of patient
[ ] Sex of patient
[ ] Past patient medical history
[ ] Other (please specify) _____

77. Are tabulations of number of clinic visits currently made?

[ ] Yes
[ ] No

78. If yes, where are they sent? _____

79. Are these tabulations made by type of visit?

[ ] Yes
[ ] No

80. How do you determine kinds and amounts of medicines and supplies needed?

_____

81. How is the order placed?

[ ] Mail
[ ] Radio
[ ] Other (please describe) _____

82. With whom is the order placed? _____

83. How often are medicines and supplies delivered? _____

_____

84. By what means of transportation are medicines and supplies delivered?

_____

_____

Atoll Name _____ Island Name _____

Clinic Name _____ Clinic Location _____

Interviewer Name _____

GENERAL INFORMATION FORM

1. Is there an airstrip within the clinic serving area?

   [ ] Yes (please specify condition) _____

   [ ] Not at present but could be one in future (please specify state of planning or construction and where it could be located)_____

   [ ] No airstrip and no possibility of having one (state reason why)_____

2. Are there free food services for the people in the clinic serving area?

   [ ] Yes
   [ ] No

   If yes, specify types of food and amounts

   _____

   _____

   _____

3. Are there any churches or other volunteer agencies which are involved in Health Care in the clinic serving area?

   [ ] Yes (please specify)_____
   [ ] No

4. Are any health services offerred by schools in the clinic serving area?

   [ ] Yes
   [ ] No

   If yes, specify by checking as many as apply below:

   [ ] Eye tests
   [ ] Immunization
   [ ] Family Planning Education
   [ ] Sexually transmitted disease prevention instruction
   [ ] Hearing tests
   [ ] Other (please specify)_____

   _____

   _____

5. Does the teacher have any health training?

[ ] Yes (please specify) _____
[ ] No

6. Are there any medical supplies available at the school?

[ ] Yes (please specify) _____
[ ] No

7. What are the primary occupations of the people on the island? (Check as many as apply)

[ ] Many on government dole
[ ] Fishing
[ ] Agriculture (specify what type) _____
[ ] Work for industry or military (specify) _____

8. Describe type of homes, home construction, and condition:

_____

_____

_____

9. Do people grow any of their own food?

[ ] Yes (specify what) _____
[ ] No

10. Do all the people in the clinic serving area speak one language?

[ ] Yes (specify what language) _____
[ ] No (specify what languages—primary languages and other languages spoken)

_____

_____

11. What percentage of people in the islands speak English? _____

Please check yes or no for each of the following health services as to whether or not they are available in a clinic serving area? If you check yes, please describe the service, its availability, and reliability.

	Type of Health Service	No	Yes	Nature of Service, Availability, Reliability
12.	Optical services	[ ]	[ ]	_____
13.	Medicines or pharmacy services	[ ]	[ ]	_____
14.	Rehabilitation service	[ ]	[ ]	_____
15.	Care for the ages	[ ]	[ ]	_____
16.	Psychiatry services	[ ]	[ ]	_____
17.	Suicide prevention services	[ ]	[ ]	_____
18.	Alcohol rehabilitation	[ ]	[ ]	_____
19.	Alcoholism prevention	[ ]	[ ]	_____
20	Drug abuse rehabilitation	[ ]	[ ]	_____
21.	Drug abuse prevention	[ ]	[ ]	_____
22.	STD services	[ ]	[ ]	_____
23.	Other health services			
	_____	[ ]	[ ]	_____
	_____	[ ]	[ ]	_____

24. Describe terrain of clinic serving area: _____

_____

25. Describe soil conditions: _____

_____

LOMA LINDA UNIVERSITY MARSHALL ISLAND
ENVIRONMENTAL HEALTH SURVEY

ATOLL NAME _____ Island Name _____

Surveyor's Name _____ Aid's Name _____

Source of Information _____

_____

Population No. _____ [ ] Census (date _____)

[ ] Other, specify _____

No. of dwelling units _____ No. of people/unit _____

HOUSING

Main wall construction. [ ] cement (block) [ ] wood [ ] mat

[ ] other, specify _____

Main floor construction. [ ] tile [ ] wood [ ] cement [ ] mat

[ ] stone [ ] earth [ ] other, specify _____

Main roof construction. [ ] metal [ ] thatch [ ] other, specify _____

General state of repair. [ ] good [ ] fair [ ] poor

Comments _____

_____

TOILET FACILITIES

Type [ ] pit privies ([ ] with water-seal [ ] without water-seal)

[ ] inside flush toilet

[ ] other, specify _____

Condition [ ] adequate [ ] odor [ ] flies [ ] surafce contamination

Comments _____

No. of persons using each unit _____

Sewer System [ ] no [ ] yes, if yes, type of treatment _____

_____

Other disposal system(s) _____

WASHING OR BATH FACILITES

No. of washing - bath facilites _____ No. dwelling units/facility _____

Type(s) [ ] sink [ ] tub [ ] shower [ ] other, specify _____

Comments _____

_____

WATER SUPPLY

Source [ ] rainwater [ ] ground water [ ] other, specify _____

[ ] Community system [ ] Individual [ ] Both

Storage capability of island

No. and size of tanks or cisterns

_____

_____

_____

Total gallons of capacity _____

If cisterns - catchment area _____

_____

Is emergency storage available [ ] no [ ] yes, if yes, capacity ___

_____

Distribution [ ] piped inside house [ ] piped outside

[ ] other, specify _____

Treatment [ ] none [ ] filter [ ] disinfection

Comment _____

Sanitary condition [ ] good [ ] fair [ ] poor

Protection from contamination [ ] no [ ] yes

Use [ ] domestic only [ ] domestic plus agriculture

[ ] other, specify _____

Comments _____

_____

SOLID WASTE DISPOSAL

[ ] burned [ ] buried [ ] ocean-lagoon dumping [ ] land dump(s)

[ ] other, specify _____

Collection or dumping [ ] community [ ] individual

Frequency of disposal [ ] daily [ ] weekly [ ] other, specify _____

Containers used for storage [ ] no [ ] yes, if yes, type and adequacy _____

Comments _____

_____

VECTOR CONTROL

Insects	Abundant	Few
Flies	[ ]	[ ]
Mosquitoes	[ ]	[ ]
_____	[ ]	[ ]
_____	[ ]	[ ]

Any control measures being used [ ] no [ ] yes, if yes, what is being done? _____

Rodents (evidence of or complaints of)

Rats [ ] no [ ] yes, comment _____

Mice [ ] no [ ] yes, comment _____

Any control measures being used [ ] no [ ] yes, if yes, what is being done? _____

Is solid waste available to rodents [ ] no [ ] yes

Is food protected from insects and rodents [ ] no [ ] yes

Comments _____

_____

FUEL USED FOR COOKING

[ ] propane [ ] kerosene [ ] firewood [ ] other, specify _____

_____

SAFETY AND ACCIDENTS

Do you observe conditions which favor accidents [ ] no [ ] yes, if yes, specify _____

Most common accidents among children _____

Most common accidents among adults _____

Any storm shelter(s) [ ] no [ ] yes, if yes, size, adequacy, condition and supplies _____

Any warning system for storms and tsunamis? [ ] no [ ] yes, describe _____

DOMESTIC ANIMALS

			Location		Restraint	
Kind	Use	Est. no.	by dwelling	or not	free	or not
_____			[ ]	[ ]	[ ]	[ ]
_____			[ ]	[ ]	[ ]	[ ]
_____			[ ]	[ ]	[ ]	[ ]
_____			[ ]	[ ]	[ ]	[ ]
_____			[ ]	[ ]	[ ]	[ ]

FOOD RESOURCES, AGRICULTURE, AND INDUSTRIES

Food consumed on island

[ ] mostly external to local system

[ ] mostly from local system

[ ] mixed

Source and type _____

_____

FOOD RESOURCES, AGRICULTRE, AND INDUSTRIES (CONT'D)

Agriculture and Marine Resources

Any crops grown and utilized [ ] no [ ] yes, if yes, list below

Name of plant Use	Home use	Sale	Export
_____	[ ]	[ ]	[ ]
_____	[ ]	[ ]	[ ]
_____	[ ]	[ ]	[ ]
_____	[ ]	[ ]	[ ]
_____	[ ]	[ ]	[ ]
_____	[ ]	[ ]	[ ]
_____	[ ]	[ ]	[ ]

Any crops which could be grown and utilized? List.

_____

_____

Limitations for agriculture (space, water, soil, plant disease, not needed, no interest ...)? Comment _____

_____

Any marine resources utilized (fish, shellfish, etc.)

[ ] no [ ] yes, if yes, list below

Name Use	Home use	Sale	Export
_____	[ ]	[ ]	[ ]
_____	[ ]	[ ]	[ ]
_____	[ ]	[ ]	[ ]
_____	[ ]	[ ]	[ ]
_____	[ ]	[ ]	[ ]

Any marine resources which could be utilized? List.

_____

_____

Limitations to marine resource use (not needed, no interest, polluted, other ...)? Comment _____

_____

Industries (non-agricultural-fishing)

Any local industries (including home industries)? [ ] no [ ] yes, if yes, list. _____

_____

_____

_____

_____

GENERAL OBSERVATIONS AND COMMENTS

_____

_____

_____

_____

_____

_____

_____

_____

_____

Atoll Name _____ Island Name _____

Clinic Name _____ Clinic Location _____

Interviewer Name _____

CLINIC FACILITIES FORM

1. Describe clinic location in relation to other facilities, ie. stores, docks, airstrip, homes. Sketch a map on back of this page indicating relative location of clinic.

_____

_____

_____

_____

2. Describe boundaries of clinic serving area. (If clinic serving area is part of an island, describe what part and how many other clinics are on island. Name island if clinic serves only one island. If clinic serves adjacent islands, name all islands in the atoll.) Sketch a map on back of this page.

_____

_____

_____

_____

3. ___ feet by ___ feet Outside dimensions of building.

4. Building wall material:

[ ] Wood
[ ] Brick
[ ] Concrete block
[ ] Stone
[ ] Masonite
[ ] Other (please specify) _____

5. Roof material:

[ ] Metal
[ ] Wood and tar composite shingles
[ ] Thatch
[ ] Tile
[ ] Other (please specify) _____

6. ____ Number of windows needing repair (broken glass, jammed open or shut, etc.)

7. ____ Number of doors needing repair.

8. Does roof leak?

[ ] Yes (describe) _____
[ ] No

9. Floor material:

[ ] Concrete
[ ] Wood
[ ] Dirt
[ ] Other (please specify) _____

10. Toilet facilities for clinic:

[ ] Flush toilet in building
[ ] Chemical toilet in building
[ ] Outhouse with pit toilet
[ ] Open pit toilet outside
[ ] No toilet facilities
[ ] Other (please specify) _____

11. Clinic washing facilities:

[ ] Piped water with sink and drain in building
[ ] Sink and drain in building but no piped water
[ ] No sink and drain in building (please describe washing facilities)

_____

12. Lighting source:

[ ] AC electric light
[ ] DC electric light
[ ] Other light source (please describe) _____
[ ] No light source

13. Type of electrical power available for operating equipment:

[ ] None available
[ ] 120 volts, 60 Hz AC power available
[ ] Other type AC electrical power (give voltage _____ frequency _____)
[ ] Battery powered DC available (give voltage _____) and (state how batteries are recharged)

_____

14. If there is AC power available, describe the source:

[ ] Has its own generator in good working condition
[ ] Clinic has its own generator but not in good working condition
[ ] Community supplied power which is reliable
[ ] Clinic supplied power which is unreliable
[ ] Other (please describe) _____

15. Type of refrigeration:

[ ] None available
[ ] AC electric operated
[ ] Kerosene refrigeration
[ ] Other type operated
(please describe) _____

→ Dimensions of storage space in inches:
Height _____ Width _____ Depth _____

_____

16. _____ Total number of beds in clinic.

17. _____ Number of mattresses.

18. _____ Number of mattresses in good condition.

19. _____ Number of mattresses in poor condition.

20. Examination table facilities:

[ ] None
[ ] Plain table with blanket
[ ] Regular examination table(s)

(describe each on the next page)

20. (continued) Regular examination tables(s) (describe each below)

Material		With Stirrups		Padded Top		Condition			
Wood	Metal	Yes	No	Yes	No	Good	Fair but Usable	Unusable	Comments
[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	_____
[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	_____
[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	_____
[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	_____

DIAGNOSTIC EQUIPMENT

If there is none of the particular type of diagnostic equipment in WORKING condition, be sure to write in zero (0).

21. _____ Number of mercury blood pressure cuffs in working condition.

22. _____ Number of aneroid blood pressure cuffs in working condition.

23. _____ Number of stethoscopes in working condition.

24. _____ Number of otoscopes with specula in working condition.

25. _____ Number of ophthalmoscopes in working condition.

26. _____ Number of reflex hammers in working condition.

27. _____ Number of tape measures in working condition.

28. _____ Number of infant scales in working condition.

29. _____ Number of adult scales in working condition.

30. Is there a device for measuring height?

[ ] Yes (please describe) _____
[ ] No

31. Other equipment (please list):

_____

_____

_____

_____

_____

SUPPLIES

MEDICATION AND SUPPLIES

		None	Some but Inadequate	Adequate
32.	Pain medicine	[ ]	[ ]	[ ]
33.	Antibiotics	[ ]	[ ]	[ ]
34.	Parasite medicine	[ ]	[ ]	[ ]
35.	Diarrhea medicine	[ ]	[ ]	[ ]
36.	Blood pressure medicine	[ ]	[ ]	[ ]
37.	Skin ointments	[ ]	[ ]	[ ]
38.	Other (please specify) _____	[ ]	[ ]	[ ]
39.	Other (please specify) _____	[ ]	[ ]	[ ]
40.	Other (please specify) _____	[ ]	[ ]	[ ]
41.	Oral contraceptives	[ ]	[ ]	[ ]
42.	Condoms	[ ]	[ ]	[ ]
43.	IUDs	[ ]	[ ]	[ ]
44.	Other family planning (please specify) _____	[ ]	[ ]	[ ]
45.	Other family planning (please specify) _____	[ ]	[ ]	[ ]
46.	Bandages	[ ]	[ ]	[ ]
47.	Dressings	[ ]	[ ]	[ ]
48.	Splints	[ ]	[ ]	[ ]

SUPPLIES (continued)

MEDICATION AND SUPPLIES (continued)

		None	Some but Inadequate	Adequate
49.	Plaster cast material	[ ]	[ ]	[ ]
50.	Sheets	[ ]	[ ]	[ ]
51.	Linens--towels, etc.	[ ]	[ ]	[ ]
	Other expendables (please specify):			
52.	_____	[ ]	[ ]	[ ]
53.	_____	[ ]	[ ]	[ ]
54.	_____	[ ]	[ ]	[ ]
55.	_____	[ ]	[ ]	[ ]
56.	_____	[ ]	[ ]	[ ]
57.	_____	[ ]	[ ]	[ ]
58.	_____	[ ]	[ ]	[ ]
59.	_____	[ ]	[ ]	[ ]
60.	_____	[ ]	[ ]	[ ]
61.	_____	[ ]	[ ]	[ ]
62.	_____	[ ]	[ ]	[ ]
63.	_____	[ ]	[ ]	[ ]
64.	_____	[ ]	[ ]	[ ]
65.	_____	[ ]	[ ]	[ ]
66.	_____	[ ]	[ ]	[ ]
67.	_____	[ ]	[ ]	[ ]
68.	_____	[ ]	[ ]	[ ]
69.	_____	[ ]	[ ]	[ ]
70.	_____	[ ]	[ ]	[ ]
71.	_____	[ ]	[ ]	[ ]
72.	_____	[ ]	[ ]	[ ]
73.	_____	[ ]	[ ]	[ ]
74.	_____	[ ]	[ ]	[ ]
75.	_____	[ ]	[ ]	[ ]
76.	_____	[ ]	[ ]	[ ]
77.	_____	[ ]	[ ]	[ ]
78.	_____	[ ]	[ ]	[ ]

HEALTH NEEDS ASSESSMENT OF THE MARSHALL ISLANDS

****

TO BE FILLED OUT BY INTERVIEWER

Date _____

Atoll Name _____ Island Name _____

Nearest Dispensary Name _____

Interviewer Name _____

NOTES TO INTERVIEWER:

1) Exclude from sample any non-Marshallese citizen (i.e. Australian, American, Japanese, Filipino, etc.) who is not a permanent resident. Permanent residents from other Micronesian Islands are to be included (i.e. Ponapé, Guam, Saipan, Kusai, Truk, etc.)

BEGIN INTERVIEW ON THIS PAGE

****

ASK ALL QUESTIONS OPEN-ENDED UNLESS OTHERWISE SPECIFIED

1. How long have you lived on this island?

   [ ] Less than one year
   [ ] 1-3 years
   [ ] More than 3 years

   READ CATEGORIES

2. Do you spend any time of the year on another island/or islands?

   [ ] Yes
   [ ] No

3. If yes, how long were you there?

   Island _____ How long? _____

   Island _____ How long? _____

   Island _____ How long? _____

4. About how many people live in your household?

   _____ Children

   _____ Women

   _____ Men

5. How would you consider your present health?

   [ ] Excellent
   [ ] Average
   [ ] Poor

   READ CATEGORIES

6. Were you sick or hurt very badly during the past year?

[ ] Yes (continue)
[ ] No (skip to question #11)

7. How long were you sick? CHECK CATEGORY

[ ] 1-3 days
[ ] 4-7 days
[ ] 8-14 days
[ ] 15 or more days

8. Is that the only time you were seriously sick?

[ ] Yes
[ ] No (please specify) _____

9. Could you tell me how you felt when you were last sick? _____

_____

CHECK SYMPTOMS AS THEY TALK. DON'T PROBE TOO DEEPLY BUT ENCOURAGE THEM TO TALK FREELY. AFTER EACH RESPONSE SAY: "CAN YOU REMEMBER ANYTHING ELSE?"

[ ] Blurry vision
[ ] Fever (hot feeling)
[ ] Gain or loss of weight (more or less than 10 pounds in one month)
[ ] Shortness of breath
[ ] Chest pain
[ ] Chills (cold feeling)
[ ] Cough that won't go away
[ ] Upset stomach
[ ] Vomitting
[ ] Diarrhea
[ ] Abnormal bleeding
[ ] Fainting spells
[ ] Dizziness
[ ] Rash on skin
[ ] Abnormal mass
[ ] Excessive loss of hair
[ ] Excessive urination
[ ] Jaundice
[ ] Excessive thirst
[ ] Sores that won't heal
[ ] Other (please specify) _____

[ ] Other (please specify) _____

10. What do you think caused you to get sick?

INTERVIEWER MAY NEED TO GIVE AN EXAMPLE, i.e. "SOMETHING YOU ATE?"

_____

11. How often do you think the following things cause people to get sick?

DON'T READ "DON'T KNOW" CATEGORY

	Often	Sometimes	Hardly Ever	Don't Know
Polluted water	[ ]	[ ]	[ ]	[ ]
Not enough water	[ ]	[ ]	[ ]	[ ]
Not enough food	[ ]	[ ]	[ ]	[ ]
Spoiled food (refrigeration)	[ ]	[ ]	[ ]	[ ]
Wrong kind of food	[ ]	[ ]	[ ]	[ ]
Flies or insects	[ ]	[ ]	[ ]	[ ]
Radiation	[ ]	[ ]	[ ]	[ ]
Garbage	[ ]	[ ]	[ ]	[ ]
Human and animal waste	[ ]	[ ]	[ ]	[ ]
Germs	[ ]	[ ]	[ ]	[ ]

12. Have you ever been unable to get help when you were sick?

DO NOT READ CATEGORIES

[ ] Yes, I have been unable to get help.
[ ] No, I have always been able to get help. (skip to #14)

13. Could you tell me <u>why</u> you were unable to get help?

DON'T READ CATEGORIES

[ ] Clinic too far away
[ ] Couldn't get to clinic because of weather
[ ] Health worker out of town
[ ] No one to take care of children
[ ] Too sick to get out of bed
[ ] Disabled, unable to walk
[ ] Other (specify) _____
[ ] Other (specify) _____

14. Does the local health worker make you feel better when you are sick?

[ ] Always
[ ] Sometimes
[ ] Never

MAY NEED TO PROBE TO GET AT REAL REASON FOR NOT LIKING HEALTH WORKER

Why couldn't the health worker help you to feel better?

(specify) _____

_____

15. When the health worker can't help you, who do you go to?

[ ] Traditional healer
[ ] Traditional midwife
[ ] Health worker on other island

Where? _____

[ ] Doctor at main hospital
[ ] Other (specify) _____

16. How often did you or someone in your household use the following health services in the past year?

	Never	Once	2-3 Times	4 or More Times
Nearest clinic	[ ]	[ ]	[ ]	[ ]
Other clinic	[ ]	[ ]	[ ]	[ ]
Hospital - Ebeye	[ ]	[ ]	[ ]	[ ]
Hospital - Majuro	[ ]	[ ]	[ ]	[ ]
Other (please specify)	[ ]	[ ]	[ ]	[ ]

_____

17. How long does it take you to reach the nearest clinic?

_____ hours (Minimum time)

_____ hours (Maximum time)

ATTEMPT TO DETERMINE MINIMUM AND MAXIMUM TIME--MAY NEED TO PROBE

18. How long does it take you to reach the main clinic on the atoll?

_____ hours (Minimum time)

_____ hours (Maximum time)

19. How long does it take you to reach the nearest hospital?

_____ hours (Minimum time)

_____ hours (Maximum time)

20. Are there certain times you cannot get to the clinic because of weather?

[ ] Yes
[ ] No (skip to #21)

(Please explain) _____

_____

21. Are you able to get medicines when you need them?

[ ] Usually
[ ] Sometimes
[ ] Never

READ CATEGORIES

22. If you have difficulty in obtaining medicine, what is the main reason?

DON'T READ CATEGORIES

[ ] Inadequate supply
[ ] Distance from supply
[ ] Cost
[ ] Other (please specify) _____

23. Where do you get medicines?

DON'T READ CATEGORIES

[ ] Health worker at the clinic
[ ] Buy from local store keeper
[ ] Gift from friends or relatives
[ ] Buy at main hospital (Majuro, Ebeye)
[ ] Other (specify) _____

24. Do you smoke cigarettes?

[ ] Yes (continue)
[ ] No (skip to question #26)

25. How many cigarettes do you smoke each day?

[ ] Less than 1
[ ] 1-4
[ ] 1/2 pack (5-14)
[ ] 1 pack (15-24)
[ ] 1 1/2 packs (25-34)
[ ] 2 packs (35-44)
[ ] 2 1/2 packs (45-54)
[ ] More than 2 1/2 packs (55 or more)

26. What do you normally drink when you get thirsty during the day?

IF RESPONDENT ANSWERS YES TO ANY OF THE RESPONSES BELOW, ASK HOW MANY?

	Yes	No	If yes, how many a day?
Water	[ ]	[ ]	_____
Fresh coconut	[ ]	[ ]	_____
Coke/soda	[ ]	[ ]	_____
Beer	[ ]	[ ]	_____
Wine	[ ]	[ ]	_____
Liquor	[ ]	[ ]	_____
Other (specify)	[ ]	[ ]	_____

_____

27. About how many people including yourself live in your house? _____

28. About how many women who are able to have babies live in your house? _____

29. About how old were you when you had your first pregnancy? ASK FEMALE ONLY

30. About how many live babies were born to the women of your house during the last year?

_____

31. How many children do you have? _____

32. How many children do you have who are too young for school? _____

33. How many children do you have who are old enough for school? _____

34. How many children do you have who are older? _____

PROBE AND ASK ABOUT HOW OLD EACH ONE IS

ADD UP TOTAL CHILDREN. IF DISCREPANCY, PROBE TO ASCERTAIN WHY

(please specify discrepancies) _____

_____

_____

35. Where was your last baby delivered?

ASK PARENTS ONLY

[ ] Hospital (Majuro, Ebeye)
[ ] Clinic/Dispensary
[ ] Home
[ ] Other (please specify) _____

36. Who delivered your last baby?

[ ] Doctor at hospital
[ ] Health worker at clinic
[ ] Midwife
[ ] Other (specify) _____

37. When you have your baby, who do you prefer to have with you?

[ ] Health worker alone
[ ] Midwife alone
[ ] Both of above
[ ] Other (specify) _____

38. How many babies have you had who have died either at birth or before they reached one year of age?

_____

39. What island were you born on? _____

IF OTHER, PLEASE SPECIFY _____

40. What church do you go to?

[ ] Catholic
[ ] Baptist
[ ] Pentecostal
[ ] Mormon
[ ] Seventh-day Adventist
[ ] Congregational
[ ] Assembly of God
[ ] Jehovah's Witness
[ ] Other (please specify) _____

INTERVIEWER JUST CHECK

41. Sex:

[ ] Male
[ ] Female

42. About how old are you? _____

43. Did you go to elementary school?

[ ] Yes
[ ] No (skip to #45)

How many years? _____

44. Have you taken any schooling beyond that?

[ ] Yes (please specify) _____
[ ] No

PERSONS IN OUTER ISLANDS ONLY. IF DOES NOT APPLY, SKIP TO #49

45. Have you ever been to Majuro or Ebeye?

[ ] Yes
[ ] No

46. When was your last visit? _____

47. How long did you stay? _____

48. Why did you go? _____

49. Does anyone in your house have a government job?

[ ] Yes
[ ] No

APPENDIX H

Sociology Report

APPENDIX H

The Socio-cultural Perspective

A. The Physical Environment

The Pacific Ocean contains some 10,000 islands. a fraction of which is inhabited by approximately five million people speaking some 1,200 languages, which is 25% of all languages on earth. As Ron Crocombe points out,

> The "model" islanders is brown-skinned, darker today than a decade ago, and even the few black ones (especially from the Solomons) are becoming regarded as more "Pacific" rather than less. In other words, the physical image of Pacific people. which has been predominantly Polynesian and female for the last two hundred years, has become increasingly Melanesian and male during the last decade. (p. 5)

The islands of the vast Pacific are divided into three major divisions: Melanesia, which has 60,500 square miles of land; Polynesia, with 10,000 square miles; and Micronesia. with only 1,200 square miles of land. When land area and water are compared, the ratio of water to land in the great Pacific is 371:1.

In 1788, Captains Gilbert and Marshall made the first voyage from Australia to China. They happened on a group of islands that straddled the equator about 5^{o} west of the international date line. Captain Gilbert named the islands after himself. Another group of islands 10^{o} west of the international date line, and about 10^{o} north of the equator acquired, naturally, Captain Ma shall's name.

The Marshall Islands consist of two parallel chains of atolls and islands. Ratak (Sunrise) is the eastern chain and has 15 atolls and islands, and Ralik (Sunset) has 16 atolls and islands. The total islets of these atolls, however, number 1,152 and are dispersed over more than one half a million square miles, yet the aggregate land area of these hundreds of islets is a mere 69.7 square miles. These are inhabited by a total population of approximately 30,000 Marshallese.

Together with the Mariana archipelago, the Carolines, these form the Trust Territory of the Pacific Islands, administered by the United States for the United Nations since World War II. This area is generally known as Micronesia--the name suggesting the tiny size of the islands. Of the 2,240 islands in Micronesia, only 125 are inhabited.

There are two different types of islands in the Pacific, the volcanic and the coral. The Marshall Islands are all coral with a very low average elevation from the water. In most cases the average altitude is about 5 feet. All these atolls are like necklaces in the vast ocean with a lagoon in the middle. In many cases, the average width of the island is approximately one city block.

Peoples of the world are always concerned about food production and nutrition and health. Different types of islands present different problems and opportunities for agriculture and food production in general. The Marshall Islands, being all coral atolls, present special kinds of problems for local agriculture and food production. The soil is composed mostly of coral sand which is highly alkaline and consequently, unless a great amount of humus can be incorporated in the soil or unless fertile soil is imported from elsewhere, the types of plants that can be grown are very limited. The basic food supplies that are locally grown are coconuts, breadfruit, pandanas fruit, taro, and arrow root (in the northern islands). Therefore, a great majority of the food supply is imported in the form of canned goods and other staples such as rice and some flour.

B. Demography and Population

Figures are very difficult to obtain in the Marshall Islands. Statistics are something new and alien to the Marshallese ways of dealing with each other in their societal processes. However, there are several factors that can be discussed with certainty:

1. The official population census of 1973, as quoted in the Health Contract between the S.D.A. Church and the government of the Marshall Islands, was 24,135. However, all government officials believe the count in 1980 is around 30,000. A census is being conducted in the islands during 1980. The results are not known yet and probably will not be for some time.

2. The population is a young population. It is estimated that half of the population is 20 years of age or younger.

3. There is a great shift of population from the outlying atolls and islands to two major centers. These are Ebeye, in Kwajalein atoll, and in the Rita area of the Majuro atoll. It is estimated that there are 12,000 Marshallese on Majuro and approximately 8,000 on Ebeye. These, then, constitute the two major urban centers of population totaling approximately 20,000 Marshallese, which would be fully 2/3 of the total population. Social problems related to urbanization will be discussed below.

C. Historical Background

Bitter and bloody fighting between Japan and the United States during World War II so devastated the Marshall Islands that no one would have projected that by 1981 they would emerge as the newest among the sovereign nations of the earth. And their population of some 30,000 on a land area of less than 70 square miles makes this eminent development seem somewhat unique even today.

Although anthropologists differ as to the origins of those people who came to inhabit these scattered islands and atolls of the central Pacific, historians agree that since the 16th century they have suffered almost continuously at the hands of invaders, colonizers, exploiters, adventurers, and missionaries. The myth of an idyllic, utopian society in the romantic South Seas drew men to them as iron to a magnet. But unfortunately the impact of these foreigners on the Marshallese has been far from idyllic.

After Magellan discovered this part of the world for Europeans in 1520, Spain slowly advanced her military, political, economic and religous control of the Pacific. But not until the 19th century were the Marshalls made a part of her vast imperial holdings in any formal sense. And her control was so weak that an aggressive Germany seized control of the Marshalls later in the century.

German administration encouraged the development of trade and established copra production as the economic base for the Marshalls. Although a limited public works program was commenced by Germany, this was abruptly terminated by World War I when an expansionist Japan seized control.

In 1922 the League of Nations formally granted Japan a mandate over the Marshalls, which was soon followed by the establishment of a civilian administration. Under firm Japanese control the economy prospered for the first time. Thus, older citizens still remember the Japanese with some fondness because jobs were abundant and education, modern agriculture, improved fishing techniques, and modern communication systems were introduced.

In 1947 the United States accepted a United Nations trusteeship for what came to be termed the Trust Territory of the Pacific Islands. This comprised all former Japanese mandated islands, including the Marshalls, which had been reconquered by American forces during World War II.

In 1980 representatives of the United States and the Marshall Islands agreed to a Compact of Free Association. Under this arrangement the Marshallese will enjoy full internal self-government and control over foreign affairs, with the United States guaranteeing security and defense. This relationship will continue for fifteen years with the United States providing generous economic assistance.

United Nations approval for the ending of the trust arrangement seems assured.

There is reason to expect that 1981 will see the birth of the sovereign nation of the Marshall Islands. She already has developed a constitution, organized a government, and created a flag. In their independent status the Marshall Islands will need to continue developing an efficient bureaucracy, a viable economy, a functional educational system, and an adequate health care program.

(For an excellent detailed historical summary of Western influence in Micronesia, see the paper entitled American Rule in Micronesia: Where Have All the Dollars Gone by Drs. Hamnett and Kiste of the East-West Center and the University of Hawaii, 1980.)

D. The Marshallese Social System

There are three classes in the Marshall Islands in the social stratification system. At the top there is the iroij system or class, which is the class of the chiefs. Iroij laplap is the term for high chief and there are few of those. The chief 'owns' all of the land on a certain island or atoll or group of atolls, and he is the supreme authority.

The next class is the alab class, which is the lineage heads. They are really secondary land owners because the iroij is still the chief land owner. The alabs, then, are heads of families or clans and they are responsible to distribute the land for its various uses. Land is rarely ever in the hands or belongs to individuals. It is only a trust that belongs to the whole family or tribe under the iroij. The atolls are very narrow, often a city block in width, and the alab slices the island like a loaf of bread, giving each strip, known as wato, which extends from lagoon to ocean, to a household or to a family to operate it and live on it.

The third class is the workers, the rijerbal. Obviously, these constitute the large majority of people. The question of land tenure is a very complicated issue, even to the Marshallese themselves, and there have been several studies conducted on land tenure. A good example is Dr. Michael A. Rynkiewich's entitled Adoption and Land Tenure Among Arno Marshallese .

The traditional way of life gave the chief final authority over men and women and consequently, whatever took place in society was very much under the benevolent eyes and observance and protection of the iroij. This traditional way of life may appear to be changing with the introduction of a democratic form of government that has a constitution, election, and bureaucratization. It is apparent, however, that the traditional stratification system is very much at the heart of the social structure, and that any willful or unwillful ignorance of this fact would be dealing with a veneer of democratic modernity over the real body politic--the iroij, alab, and rijerbal social structure.

The social organization of the Marshall Islands can readily be identified as belonging to the Gemeinschaft, or primary group, of societal ideal types. This means that life is based on face-to-face, personal, small group interaction. This also means that respect for traditional authority, for customs, for the standard ways of doing thigs is uppermost in the minds of people. It has been observed that the most important aspect of successful programs in the Marshall Islands as in all such societies is based on recognition of the realities of the social structure, its authority, its traditions, etc., and sincerely complying with and respecting the local traditions and culture. The following quotations clearly demonstrate this need:

> Article 16, Section C, of the contract between the government of the Marshall Islands and the S.D.A. Guam-Micronesia Mission, executed February 14, 1980:
>
> "The Contractor hereby agrees to take Marshallese custom and tradition into account in its administration of the health services system and to respect the same. No employee shall be compelled by reason of employment by the Contractor to do any act or refrain from doing any act which would violate Marshallese custom and tradition.
>
> "On question of custom and tradition the Contractor, as the party responsible for management and control of the health services system, shall have the same right as any department or agency of the Government to seek the advace of the Traditional Rights Court of the Marshall Islands on questions of custom and tradition."
>
> In an interview with Mr. Oscar DeBrum, Chief Secretary of the Government of the Marshall Islands, Mr. DeBrum said:

> "I appreciate bringing in the Human Relations Team as well as the scientific team of Loma Linda University. This is very important to us particularly. The Western world does not always understand us and our culture. They may mean well, but they are often unsuccessful because, as I told the Trust Trust Territories of the Pacific Islands Commissioner, 'The problem of the T.T.P.I. in the past has been planning for people instead of planning with people.'"

There are 33 senators in the Marshallese Parliament (The Nitijela), usually one from each atoll except where there is a concentration of population. Kwajalein, for instance, elects three senators: Arno 2; and so forth. There are 10 ministries in the government, and there should be obviously 10 ministers, but the President is responsible for the portfolio of the Minister of Foreign Affairs, so that leaves 9. There is also an important council of chiefs, a council of iroij, which has 12 chiefs who come from the major districts of the Marshall Islands. The House of Iroij receives the bills from the legislature in order to look at them and then examine them carefully to see if there is anything that conflicts with the Marshallese customs and traditions and the things that affect land and land tenure. It it is something serious, they will recommend change; it is is nothing serious, they will return it to the legislature for final approval.

In other words, when the Marshall Islands modernized their system of government, they agreed that some official body of leaders would have to be chosen to safeguard the country's traditions, customs, and culture. Consequently, they created the House of Iroij.

E. Religion and Values

In 1852 the Boston Mission Society sent four missionaries to Micronesia. These, however, did not establish themselves in the Marshall Islands. In 1857 a reverend Doane together with his wife settled on the atoll of Ebon. It is reported that by 1865 he had converted 125 of the 750 inhabitants of the island. From this beginning missionary activities slowly progressed over the various atolls and islands so that by the turn of the centruy the population of the islands were mostly Congregational Christians.

In talking with the Marshallese about their old traditional religion, no one could be found with authentic accounts of old religious beliefs. There was, however, clear evidence of what the Marshallese themselves now call superstition

but which seems to be a carryover from the old religious sytem. For example, there was more openness in discussing old legends and hero tales which today are not seen by Marshallese as having religious connotations, but which in the context of Micronesian culture and world view, seem to reflect the pre-Christian religious beliefs and practices. If on the sixth day after burial, people are successful in hiding around the grave, they would see the soul of the deceased coming out and flying off through the air to Mili, southeast of Majuro. This, then, is an example of a pre-christian belief which has accommodated itself to their current Christian philosophy.

Nowadays, many Protesant denominations, as well as the Catholic Church, are active in the Marshall Islands. These include representatives of the mainline churches and also Jehovah's Witnesses, Mormons, and others. In recent years, the Seventh-day Adventist Church through its educational and health programs has become prominent in the Marshalls. It appears that the religious beliefs and practices are an expression of the general Gemeinschaft nature of the Marshallese society, that is, a reinforcement of interpersonal relationships, more than a means of salvation of the individual. Traditional healers and Rijoubwe (magicians) continue to function covertly beneath the umbrella of christianity. One Marshallese informant in Majuro flashed a potentially tantalizing line of investigation into their beliefs by mentioning that the reason why some Marshallese would not destroy or allow others to destroy rats on coconut trees is because they feel rats are "their relatives, like others also consider sharks as their relatives." Is this a vestige of a totemic belief system? And what are the implications of this and similar beliefs to the introduction of health behavior changes through a comprehensive health care program?

The major value system seems to be woven around their traditional social strucutre, their family system, and material goods and power as perceived by them in conquering nations, the latest of which is the United States. Consequently, anything "American" is superior and desirable from items of food, to items of dress, to disco music and dancing, etc. In fact much of what is broadcast on Radio Majuro is American rock, to say nothing of the proliferation of "discos." Their perception of what is "American" is gleaned largely from American films and from observing American expatriats such as volunteer workers, American missionaries, American armed services personnel and their families.

It appears that an American, if accepted because of his respect for the social structure and culture, becomes in the eyes of the Marshallese a type of super-iroij, in other words, a highly respected leader potentially on the level

of their own class of chiefs. Obviously, this has deep implications for Americans who go to the Marshall Islands in leadership roles, be they connected with health care systems or educational endeavors.

F. Technology

The Marshallese technological system developed through many centuries to meet the demands for survival in an environment that was greatly influenced by the ever present sea. In early times, the technology dealt with the production and use of tools and equipment related to very simple horticulture and to a complex exploitation of the food resources on reefs, in the lagoons, and at sea. After the islands were occupied and dominated by the metropolitan powers, the commercial exploitation of the coconut was emphasized because of the world market's need for oil.

The Germans, followed by the Japanese, devoted much capital and energy to copra production. During Japanese occupation, for example, areas of breadfruit groves were destroyed in the Marshalls and replaced with coconut tress. While the Marshallese were introduced slowly to modern technology by the Germans and to a greater degree by the Japanese, it took World War II to really put them face to face with the extent of modern technology. The Marshallese had great respect for Japanese know-how and might. However, this was replaced with a feeling of awe when America defeated the then-seemingly all-powerful Japanese through their superior technology and resources.

The fruit of Western technology is evident throughout the Marshalls but especially in the two urbanized areas of Rita on Majuro, and Ebeye on Kwajalein. While the Marshallese utilize some forms of major technology, yet in the majority of cases they contract out their needs to firms and organizations from the technological and industrialized nations on the Pacific rim. More will be said about this in the section on the economy.

G. The Economy

Agriculture as understood in the West is not a source of income for the Marshallese economy, the commercial processing and sale of copra being the only significant exception. There are signs that copra production does not play the imporant role it once did in spite of the establishment of an oil pressing facility in Majuro. Entire areas of coconut groves that are not being cared for can be observed. Many Marshallese are also looking more and more for a salaried position with some foreign business or with the government.

Majuro is the capital of the Marshall Islands and the seat of its newly elected government. It is estimated that of those who are employed in Majuro, 80% work for the Marshallese government in one capacity or another. In the other center of population, Ebeye, most workers are employed by the American Army Missle Range on Kwajalein or by one of its American civilian contractors. Thus it would seem that while in the past most Marshallese were engaged in copra production, fishing, and other subsistence activities, nowadays most of the labor force is employed either by the local government or by foreign organizations.

There are quite a few small businesses that are run by enterprising Marshallese. Taxi companies, small stores, garages, small restaurants, handicraft cooperatives, theaters, and other such enterprises are becoming quite common in the urban centers. These and employment opportunities constitute an attraction to the populations of outer islands. Consequently, there is an increasing flow of people into the two urban centers, contributing to the problems that will be discussed below.

The government is working hard to establish better communication and transportation between these centers and the outer atolls and islands. To this end, a new program is vigorously underway to put an airstrip on as many atolls as possible. At present there are such strips on Enewetak, Bikini, Likiep, Mejit, Wotje, Kwajalein, Maloelap, Ailinglaplap, and Majuro. A new airline known as The Airlines of the Marshall Islands has been established with one plane in operation and other being outfitted to join its sister. These are Australian Nomad planes piloted and managed by Australian personnel at present. The Marshallese government is negotiating for landing rights in Hawaii as they plan to expand their services beyond the confines of their own islands, thus connecting their country with the outside world.

Fishing constitutes a potentially lucrative income for the Marshallese economy. To this end, there are currently negotiations to extend the exclusive economic marine zone to a 200-mile limit. This will add considerably to the already expansive area of half a million miles that the Marshall Islands occupy and insure their control of the inter-atoll waters.

At this time, however, the most important single source of revenue to the Marshallese economy is the rental paid by the United States government for the use of Kwajalein as an Army Missile Range. At present, the rental is nine million dollars annually, but negotiations are already underway to raise it to fifteen million per year.

Telecommunication remains one of the greatest needs of a country with such vast expanses and distance between atolls and islands. In order to develop further economically, the problem of regular and dependable telecommunication between the islands themselves and between them and the outside world needs

immediate attention and solution. To that end, President Amata Kabua, in his message to the Pacific Islands Conference: Development the Pacific Way, held at the East-West Center in Honolulu, March 26-29, 1980, singled out telecommunication as one of the most pressing and urgent matters for Pacific island development. He said:

> We should include in our regional development studies a determination of investment priorities for the telecommunication infrastructure services which can impact directly upon information storage and transfer, delivery of health care services, agricultural and industrial development, distribution of goods and services, and energy conservation.
>
> The Honorable Amata Kabua, however, sounded a clear warning:
>
> Our Pacific Island communities reflect a unique and diverse cultural heritage. Every effort should be made to preserve that legacy and to ensure that our young people remain sensitive the the uniqueness of their traditions. The need for cultural preservation becomes increasingly urgent in the face of the rapid social and cultural changes occurring throughout the world and our region in particular.

H. Education

Most existing schools on the Marshall Islands are elementary schools. There are, however, four High Schools in the capital Majuro: Governemnt, Catholic, Congregational, and Seventh-day Adventist. The Marshallese are deeply aware of the importance of education in the modern world. They seek every opportunity possible to ask for help in either upgrading their schools where they have them, or in starting new ones.

There seems to be a certain hesitancy on their part to accord full recognition and respect to teachers who are fellow-Marshallese. They seem to prefer help from the United States because they perceive, as mentioned before, that U.S. teachers by definition are better than Marshallese teachers or other non-Marshallese such as Filipinos. Several magistrates from different atolls extended open invitations, even with a degree of urgnecy, to come and upon up a school in their area. "We'll provide the land for you, and we'll do all we possibly can to help you, only come," seems to be a typical plea.

I. Urbanization

Majuro is the seat of Government for the Marshall Islands and as a result, has become the most densely populated island in the Marshalls. Local officials place the population of Majuro at approximately 12,500, over 50% of whom are adolescents, living in the two towns, Rita and Laura. These towns are located at opposite ends of the island of Majuro. Rita contains the larger number of people and businesses, many houses and other living units, department and grocery stores, several small eating places, governmental buildings and offices, the post office, police station, a bank, a library, several churches, and schools (high school and elementary levels in addition to a theological college). A copra factory is situated a few miles outside of Rita and an airport has been built several miles further on, on the road to laura. Many small villages and/or communities occupy the land between Rita and Laura (which is a very small residential settlement, primarily) and create a microcosm on Majuro of the entire Marshall Islands peoples.

Kwajalein, as a Missle Range Base, attracted many Marshallese people because of the job opportunities that were made available to them. Ebeye, an island in the Kwajalein Atoll, was developed by the U.S. military to accommodate approximately 2000 Marshallese workers and their immediate families. However, as word spread throughout the islands relative to the work opportunities on the Base, thousands of indigenous island people crowded onto Ebeye. Presently, an average of 8000 Marshallese are living on Ebeye in over-crowded living conditions that place a strain on food and water resources, sanitation, health, and educational facilities and services.

J. Social Problems Stemming from Urbanization and Social Change

Current social problems in the Marshall Islands take in the entire range of problems found in most emerging nations undergoing significant change. Some of the most urgent and distressing social concerns expressed by the Marshallese include increasing alcoholism, suicide, dislocation and distribution of people, car accidents, crimes (especially forgery, burglary, and assult and battery; a number of misdemeanors), prostitution and venereal disease, use of drugs, intrafamily violence (including child neglect and abuse), divorce, breakdown of relationships and communication across generational boundaries, neglect of parenting and parenting skills, lack of family planning and enhancement of family life, juvenile delinquency, homosexual relationships, lack of employment opportunities for specific age groups (especially adolescents and the Elders); and other mental health problems such as apathy, alienation, depression,

tension/stress syndromes, confusion and ambivalence (self-identity crises, role dysfunction and identification crises for adolescents and adults); and fear of the unknown and of the future.

Current Service Programs Established to Meet Changing Needs and Social Problems

In an attempt to meet the needs of the Marshallese people, a number of service agencies and programs are sponsored by the Governemnts of the Marshall Islands and the United States, church groups and church leaders, outside professionals and consultants, and local volunteers in special projects.

The Department of Social Services has five divisions of services that are available, to one degree or another, to all of the Marshall Islands. These divisions include: 1) Food Services Division which provides USDA hot lunch programs for 88 schools throughout the Islands; and the Needy Family Distribution Program which hires clerical persons, cooks, and a nutritionist for services to families with low (or, no) income. 2) Housing Services provide funds for low cost housing and assistance with house construction. This service also maintains Grant-in-Aid financial assistance programs for the outer islands and a Community Development Disaster fund. 3) People Division which serves Senior Citizens through Community Center activities (exercise classes, employment counseling, socialization groups, health classes, and group meetings to help the Elders preserve traditional customs such as local navigation, building canoes, fishing, story telling, local foods and folk medicines, and handicrafts). This program has offered nutrition programs (feeding of the Elders) in the past. 4) Adult Service Division sponsors 117 women's educational groups throughout the Islands. Flying Workshops and Ship Workshops, in an outreach project for all isladns, use volunteer and women's groups to present educational group sessions on parenting, budgeting, nutrition (for balanced meals), First Aid, leadership skills, family life, and family planning, etc. 5) Youth Services Division sponsors programs for recreation and sports with the assistance of several Peace Corp volunteers, handicradft classes, music groups, Youth Conservation Corp, Boy Scouts and Girl Scouts organizations, and dances for the teenagers and young adults.

The Department of Social Services also sponsors a local radio program for information and educational purposes.

Church leaders and congregations have developed volunteer-oriented service projects for a limited number of Marshallese of all age groups. Nutrition projects (they feed people; these are not specifically "how to" sessions), recreational activities; programs that resemble Alcoholics Anonoymous (Kwajalein) and a men's group called F.A.I.M. (Fighting Alcohol In the Marshalls) on Majuro, and Alanon (Ebeye), socialization and educational groups, handicrafts

groups, and a number of women on Ebeye called "Voice of Women" who raise money for hospital equipment and medical supplies and make up some of the local self-help activities on the more urbanized islands.

A variety of service programs have been introduced to the peoples of the Marshall Islands, have waned, and have been re-introduced again. Even with these various projects, only the surface has been scratched to date, in identifying the needs and wishes of the people, and in implementing programs on a long term, consistent basis.

K. The Marshallese and Health Plans

In contacts with the Marshallese, official and non-official, there seemed to be general agreement on several issues:

1. "We have been studied to death," was a lament heard repeatedly both in the urban centers and rural atolls. There is a markedly growing resentment to the many agencies, commissions, scientists, and other groups that seem to the Marshallese to be an endless stream of people who come, ask questions, do measurements, conduct surveys, and disappear. The officials object strongly to the fact that no reports of the findings are made available to them in their offficial capacity as the governing body of the Marshall Islands. People want results and want to see the outcome of all these studies.

2. There is a growing resentment to the de-facto lack of recognition of "proper channels" of official communication. A very high ranking government official said: "By not working directly through the leadership, the United States could cause ill feelings amongst the people of the Marshall Islands. I think they can accelerate the feelings of, should I say, separatism, within the Marshall Islands. . . Any attempt to work from the bottom up could bring about differences of opinions, individual griefs, and feelings of segmentations because the Marshall Islands as you know is composed of 24 atolls. All think differently, quite frankly. But we have decided to stand united as one under the Constitution of the Marshall Islands. Working from the top down, we can use that avenue of the constitution. I think we can accelerate the feeling of unity among the people."

3. The Marshallese have developed a seemingly irreversible psychology that the U.S. owes them, by right, a comprehensive health care system--for all the Marshallese on all the islands and atolls. It is important to review here the arguments used by the leaders of thought and the leaders of government for such a demand. One high ranking official put it this way:

> As a result of the experiments on the northern atolls, a great age of nuclear science was born with its dangers and its benefits. The Marshallese of Bikini, Enewetak, and other atolls paid the price for this nuclear knowledge and thus, they are partners in this great atomic age. We in the Marshall Islands were partners in the testing; it is our right, therefore, to be partners in the remedies and cures for the ailments and conditions caused by the negative effects of radiation, and also partners in the positive scientific benefits in the peaceful uses of the atomic age.

How is it that there is an almost unanimous opinion that any health plan should be a universal one covering all the Marshallese everywhere? And what about the voices from the northern four atolls that have been heard in litigation and out of litigation claiming exclusivity of health attention?

> The reason why some of the northern islands of Enewetak, Bikini, Rongelap and Utirik are upset when there is talk about including all the Marshall Islands in the PL 96-205 medical plan is because they believe that anything that dilutes their claims diminishes the help to which they are entitled. But the thrust is that different people need different types of help--and there should be help to everybody according to their needs. In other words, there are magnitudes of needs, and there should be magnitudes of help. And all will be included that have conditions stemming directly or indirectly from the atomic experimentation.

So says a top government official-analyst. But the question of demands for a comprehensive health care for all the Marshallese has become apparently a clarion call, and the following arguments were advanced vehemently:

1. The "Hidden Dimension"--The Affected, but not known or discovered yet

"We know that there are people who are directly affected and those who are not so directly affected. But we also suspect that there may be those who are actually physiologically affected but because of the lack of delivery of even the most basic rudiments of health care, we have not been able to identify them. We think the health assistant level of medical care, that has been the rule here for thirty-five years, was not in any position to be able to ascertain any of these illnesses that occurred in the period following the testing as test related or as radiation related. Even now, when people get sick in the outer islands we don't

have the capability whatsoever to differentiate. . . I shudder to think how many people have been actually directly affected and the problem was never properly identified."

2. "Strange" illnesses on atolls other than the northern four

"We hear horror stories. I look at Mejit, Likiep, and areas like that which have experienced not so normal illnesses, birth defects and other anomalies of that nature. These are areas that should be investigated, not with a mind to determine who is to blame or who is responsible, but really as a means of providing proper health care. People are sick out there; they need care. . . It is our worry that people are indeed sick and people have illnesses that are internal and severe enough that if they were in a proper medical facility one could easily discover and treat these illnesses. But because the system of health care now is such that we do not have the capability, the problem even becomes more severe than meets the eye."

3. Voluntary migration in search of safety and/or jobs

The fact that the Bikinians moved to Kili and the people of Enewetak were moved to Ujelang presents a migration problem that spells intermingling, intermarriage, and the "sharing" of the contamination that came about in the northern islands, in the opinion of the Marshallese. The migration of hundreds to Majuro to seek jobs with the government, and to Ebeye to seek jobs with the United States Army Missile Range, is seen as another dimension of the intermingling of the "unclean" with the rest of the people.

4. Food Distribution

"People in the outer islands very commonly, very normally, send in food, locally grown produce and other food, to be consumed by their relatives who are otherwise not exposed. . . Salted fish, preserved pandanas. Pandanas we know are very susceptible to radiation, holding radionuclides. So are arrowroots. That is the main one that is sent in form the northern Marshalls. Not to mention coconut crabs, salted fish, and others. These are sent all over the central Marshalls, especially Majuro and Ebeye."

Preserved food also gets sent all over the islands and especially to the centers of population. The food is preserved, like in the case of breadfruit, by burying it in the ground--a major source of radioactivity.

5. Challening the "Cigar-shaped Theory"

"There is the cigar-shaped fallout theory. . . That has never been proven. It may be true at 10,000 feet, but what happens as it settles? What about prevailing winds which run here northeast?"

6. Sailors on ships

One deputy secretary told of a personal experience when he himself was riding in Kwajalein on a ship "when that big one exploded in Bikini in 1954, and then following this, an N boat came and tied to our ship so we wouldn't leave. That following morning after they flashed, we took off and went right to Utirik and we didn't know what was going on; we didn't expect any problems. We just acted normal as can be, but we we arrived right back here, (Majuro) we were not allowed to step on the shore before the fire truck came and flushed all the ship with water and all." "There were sailors on that ship; one has died already. The other one is up in Likiep--Agnes' husband. He was a sailor on that ship. That ship was then sent to Guam and had all the canvas and coverings on it just stripped and burned. They washed it down right in Guam and the officers in the crew left the ship and never came back. They had to hire a new crew that didn't know the history of the ship. . ."

7. The Culture of What is Food

"There may be attempts now to run studies through the food chain and now affects various communities, but I find that there is an appalling lack of knowledge on the part of American scientists about how we handle food. They'll ay, 'Well, this fish might have been exposed, but only the guts and the trails.' I mean those are some of the more important delicacies of ours-- lly. Another area I think of, a very interesting article, is this one: when were studying the effects of coconut crabs in the northern Marshalls, which ally the hottest, it continued to retain its shell and retains high levels liation. When they were studying it, they concluded that it could not be the t crab affecting people because there was such a high, abnormally high, ce of problems with the women rather than the men, and when we eat coconut en a family eats coconut crab, the men and children eat the claws; the he crab go to the women. They are the ones who were catching all this the incidence was almost two to one. The high level of radionuclides as in women and nobody was picking that up. I bet you that same thing h fish and other preserved food. The women seem to catch it." t the most common course of protein for the people of Utirik who are sed, and their island was exposed, and then they continued to depend eal a day on clam, either dried or otherwise. You know, the clam - ickname. We call people of Utirik clam because they eat that so each other "clam" --"He is from "Utirik". That clam sits in open collecting everything that drops in that lagoon for a
principle source of food for them. . ."

"Turtle and crabs from northernmost islands have always been collected by people of Utirik island, Likiep and Wotje over the years. No one ever said to them that the level of radiation was higher than in the place where they live. They continue to go there and kill birds, eat bird eggs, and everything else from that area. So food gathering is very important and eating habits are very important."

8. The School of Likiep

"In Likiep during the testing, there was a school that had students from all over the Marshalls. The Catholics had a school there, the Holy Rosary school, several hundred children, not only from Likiep but from all over; and there, in fact, we find scars on girls from Namorik and Ailinglaplap. We ask, Where did you go to School? The answer: Oh, Likiep. And here they are carrying thyroidectomy scars. All these people should be tracked down. Cursory investigation on my part, I found at least half a dozen suspicious cases on non-Likiep residents who were in school when they gave the testing . . . Karlami was one. He died finally of cancer. Angel, Guidel's wife, and several others.

9. Construction crews; Cleanup crews who came later to Enewetak and Bikini

"You have to also remember that when Bikini was originally cleaned up, the hazards of radiation were not quite as well known, quite as well understood, then as they are now. So, many of these guys may have been exposed really without anyone knowing how much and to what extent. The story of the well is a classic. They had a well in Bikini that we, the government, dug to provide water to water the trees as they were bing planted. The men were using it to cook food, to clean their clothes and wash themselves with it as well. It was much, much later, like six or seven years into the program, that the department of energy/AEC at that time, eventually decided that the water was hazardous and that the well should be covered over. In the meantime, we don't know how many guys had drunk the water or been exposed to it in other way, food, or in actually taking baths, this sort of thing."

10. The Dumping of Copra

If anyone begins to suggest that the food really was not affected, we know it was because after the exposure of the northern Marshalls, when in those days we used to collect the copra from all over the islands, including some copra from the Carolines, into Majuro and then a big ship would come in and take it from Majuro to Japan. They had people at the docks with geiger counters to check the copra out as it left the warehouse to go into the ship and it was not uncommon for a whole truckload to be dumped right into the lagoon. If the operators felt that

it was too hot, they dumped into this lagoon. . . We know for a fact that a lot of that copra was indeed rejected as being too hot. Not rejected and burned, but rejected and dumped. It is really important. It entered our food chain. The fish eat the copra and fish liver around the Marshalls is a delicacy. Kids gather fish and grab the liver and chew on it, or heart or other parts of the entrails."

11. Family Integration

The Secretary of Foreign Affairs maintains that different systems of health delivery in the Marshalls, with obvious differential levels of efficiency and excellence, would hit at the very heart of the family and thus the social fabric. "We are saying that that would be so disruptive. . .--it would not sit sell socially. It would be difficult to justify people on one island going to this hospital and the people of another island going to that one. . . Morally, ethically, it would be a slow destruction of this society. . . A family with a father from Bikini and a mother from Mili, and adopted child. . .If you have a family that could conceivably have three or four people from three or four different atolls living in the one house, you go to see that doctor and go to that medical facility because you are from here and you to see that one because you are from there. Essentially, it doesn't work. Simply doesn't."

12. The Economic Aspects

In a special meeting with several government officials in the senate chamber on October 16, 1980, Dr. Jeton Anjain, who is the senator representing Rongelap Atoll, and also the Chairman of the Committee on Appropriations, voiced his concern that parallel systems of health delivery service would be "a terrible waste of money in this economy." Another official said, "Our people would never understand this way of doing things. We don't think that the Burton Bill should be administered by an organization or an entity other than that which the government utilizes for its general delivery of health services."

13. Disruption of Social Values and Customs: Adoption

"Adoptions are very, very common in our society, very common. It is not uncommon for a family of 8 or 9 to have at least one or two adopted children in that family. Not in the strict legal adoption sense that you are familiar with in the United States, but where I have a sister who has a son and I say, 'I'd like your son to grow up with my family.' She says, 'Fine.' The son becomes a member of my family, just as if he were my own. Or vice versa. I might have a daughter or a son, and a sister might want that son or daughter to live with her and become her son or daughter. That still happens today. Sending different members of the same household to receive help from different systems would not be acceptable. . . You take the average household in Ebeye or Majuro--it is upwards form 11 to 15. You are bound to have multi-island people in the one household. . . It could destroy the social fabric."

14. Termination of the trusteeship

There is a deep and widespread belief that after termination, which is expected in 1981, all internal affairs will have to administered by the duly elected government of the Marshall Islands. "We have had an agreement since 1976 that termination will occur in 1981. We have done our part. We have formed our government. We've ratified our constitution. We've had our election. So, that's the way it's going to be. . .The United States domestic arm cannot have anything to do in Marshallese internal affairs after termination."

15. A statement from the Minister of Health

"We are happy the U.S. Government is continuing to pay attention to those of our people who were displaced and to those who were directly affected by the atomic experimentation on our islands. The truth is, however, all the Marshallese have been very deeply affected by years of atomic experimentation. There are several points I want to make clear: (1) there are Marshallese that have been directly physiologically affected by the experiments. (2) There has been a lot of intermingling because of displacement and mobility between those directly affected and other Marshallese throughout the islands. (3) Their offspring are a mixture that cannot be ruled out as not affected. (4) More and more people are suffering with thyroid problems and cancer throughout the Marshall Islands. Is this trend related to the testing or not? And is there a way to differentiate between those whose problems were caused by exposure to radioactivity and those not? (5) The U.S. government has a dual responsibility: one to those directly affected by radiation (and they are now scattered throughout the Marshall Islands), and to those indirectly affected by the tests (and it is my conviction that every Marshallese has been affected directly or indirectly by the tests).

"There are those whose problems are primary; and those whose problems are secondary. There are those whose problems are physiological; and those whose problems are social-psychological. Those who live or come from the four main islands affected (Enewetak, Bikini, Rongelap, and Utirik); and those who through intermarriage, migration, and intermingling are found as far south as Ebon, as far east as Knox, and as far west as Ujelan. Let us face it, every Marshallese that has been affected needs care and is entitled to it. I say there is no way to separate the victims after all the mingling and migration. It is a comprehensive problem that needs a comprehensive solution."

APPENDIX I

Nutrition Data

APPENDIX I

NUTRITION DATA

The diet of the Marshallese People consists mainly of coconut, fish, breadfruit, pandanus, and rice. Bananas, papayas, taro and arrowroot make up a smaller part of the diet. The percentage of the diet made up of each food type will vary depending on location and season. Naidu et. al. (1980) reported that coconuts constitute up to 58% of the diet and fish constitute up to 36%.

Coconuts

Coconuts are grown thoughout the islands and in addition to providing food they are the major cash crop when sold as copra. The coconut has several uses. The unopened flower is tapped to collect the liquid which is drunk fresh or boiled down to produce a syrup used in cooking. It can also be allowed to ferment and then used as a beverage.

The immature nut is harvested for the milk or water and used commonly as a beverage. The jellylike endosperm of the drinking nut may be eaten. This is commonly used as a babyfood.

The mature endosperm or meat is eaten raw, cooked, or grated and mixed with other foods. The meat is the source of coconut oil which is used for cooking. This oil produced from the copra (meat) is the cash source for most people in the Marshall Islands.

The coconut takes about 12 months to mature but the tree produces new inflorescenses about every month so harvesting is fairly continuous throughout the year.

Nutrient value: Protein - 7%, Fat - 60%, CHO - 15%, Fibre - 4%

Breadfruit

Breadfruit is the second most important local food. The fruit is usually eaten more like a vegetable than a fruit. They may be eaten raw but most commonly are boiled, baked, roasted, fried, or made into soup. Breadfruit production is seasonal but it can be preserved as bwiru for use during the off season. Breadfruit is harvested for about 4 months (May-August) but research is currently being conducted by the South Pacific Commission in Suva, Fiji, and the University

of the South Pacific in Western Samoa to develop and test cultivars for year round production.

Nutrient value: Protein - 1.3%, Fat - 0.5%, CHO -20.1%, Fibre - 1.8%

Pandanus

The fleshy base of the fruit is eaten. It is often mixed with coconut and baked into thin flat cakes. It can be powdered and stored if kept dry. The powder can also be mixed with coconut sap and used as a drink. Pandanus are also seasonal.

Nutrient value: Protein - 0.4%, Fat - 0.3%, CHO - 19%, Fibre - 0.3%

Rice

Rice has become an important food for most people in the Marshall Islands. The rice is all imported, with the U.S. being the major if not only source. Rice is purchased in 80-100 lbs. sacks and stored for several months since visits by ship are often infrequent to the outer islands. Money to purchase rice is the number one use of cash in the islands.

Nutrient value: Protein - 7%, Fat - 0.5%, CHO - 80%, Fiber - 0.2%

Fish

Most of the fish eaten is caught in local waters by net or spear on the reefs. Some small scale commercial fishing for local consumption is practiced. Canned, imported fish is commonly eaten in the population centers. All kinds of fish are eaten and in many cases the entire fish, including entrails, is eaten. Fish are eaten whenever they are available but no local preservation is common.

Nutrient value: Since most reported data for fish only include the flesh and muscle, the data would not reflect the intake which includes the other portions of the fish.

Bananas

Bananas are grown in the areas that have adequate rainfall. This means that the four northern atolls in particular don't use bananas for food. In the wetter regions they are generally found wild or with casual cultivation. Bananas are usually harvested throughout the year.

Nutrient value: Protein - 1.2%, Fat - 0.3%, CHO - 27.0%, Fibre - 0.5%, Good vitamin A, Fair vitamin C, Poor vitamin B, High in Potassium

Papayas

Like bananas, papayas are grown where there is adequate rainfall. Fruit is available throughout the year and no preservation is practiced. The Government Agriculture Research Station in Laura, Majuro is beginning to work with papayas and increased variety testing should make papayas more plentiful.

Nutrient value: Sugar - 10%, Protein - 0.5%, Fat - 0.1%, Fibre - 0.7%
Important source of Vitamins A and C

Taro (Colocasia esculenta)

Taro is grown in swampy pits and is mainly used as a supplement when other foods are not available. The corns are usually roasted, baked or broiled. The young leaves and petals can be eaten as greens. The young shoots are eaten like asparagus.

Nutrient value (Corns): Protein - 3%, Fat - 0.4%, CHO - 29%, Fibre - 1%, Vitamins A and C. (Leaves): Protein - 3.0%, Fat - 0.8%, CHO - 6.0%, Fibre -1.4%, Vitamin C

Pumpkin (Cucurbita moschata)

Pumpkins are becoming a popular food crop. They can often be found growing wild, apparently where seeds were discarded. The pumpkin is cooked and the young leaves may be eaten in a stew.

Nutrient value: Protein - 1.0%, Fat - 0.2%, CHO - 8%, Fibre - 0.5%

Sweet Potato

Sweet potatoes have been introduced with some success. They grow well where the pigs are not free to uproot them. They are eaten cooked and the young leaves are eaten as pot herbs. They are generally only grown where cultivated and primarily where the people first tried them as an imported food.

Nutrient Value: Protein - 1.5-2%, Fat - 0.2%, CHO - 27%, Fibre - 1%, Sugar - 3-6%, good source of Vitamin A. Leaves: Protein - 3.2%,l Fat - 0.8%, CHO - 8.5%

APPENDIX J

Suggested Medicine Inventory

SUGGESTED MEDICINE INVENTORY
FOR HEALTH CENTRES
MARSHALL ISLANDS

Antibacterial

Penicillin (short and long acting, oral and injectables)
Tetracycline
Sulfonamides
Ampicillin
Streptomycin
Bactrim

Analgesics

Aspirin
Acetominaphen
Paracetomol
Codeine Compound
Demerol (under supervision)

Antipyretics

Aspirin
Paracetomol

Antihelminthics

Piperazine
Mebendazole
Levamisole
Thiabendazole
Niclosamide

Antiallergics

Chloepheniramine maleate
Promethazine
Adrenaline/Epinephrine

Antiasthmatics

Tedral
Aminophylline/Theophylline

Gastro Intestinal

Antacid: Aluminum or Magnesium Hydroxide
Antiemetics: Promethazine
Antispasmodics: Atropine
Cathartics: Senna, Epsom Salts

Antihypertensive

Hydrochlorothiazide
Lasix
Aldomet

Antihyperglycaemic Agents

Diabenase
Orinase
Insulin (P.Z.I. and Regular)

Anaesthetics

Ethyl Chloride
Xylocaine

Antidotes

Atropine Sulphate
Charcoal

Antifilairiasis

Diethyl carbimazine

Antiprotozoal Drugs

Flagyl
Chloroquine

Anti Tuberculosis

INH
Streptomycin
Rifampycin
Thiabendazole
Vit B6

Antifungals

Mycostatin
Griseofulvin
Whitfields Unguentum
Nystatin

Dermatological

Unguentum - Salicylic Acid
- Enterovioform
- Sulfur/Penicillin
- Furacin
- Whitfields

Benzyl Benzoate
Kwell

Vitamins/Minerals

- Multivitamins
- B complex
- B_6
- B_{12}
- Prenatal Vitamins
- Ferrous Sulphate
- Vitamin K
- Calcium Lactate

Oxytocics

- Ergometrine Maleate
- Pitocin

Steroids

- Prednisolone

Psychotherapeutic Drugs

- Chlorpromazine
- Melleril
- Valium, Ellavil } under supervision only

Sedatives

- Phenobarbitone

Anti Epileptics

- Dilantin

Electrolytes

- Dextrose
- Normal Saline
- Darrows Solution
- Dextrose + N/Saline

Vaccines

- BCG
- DPT
- Oral Polio
- Tetanus Toxoid
- TAT (TIG)
- MMR

OB/GYN

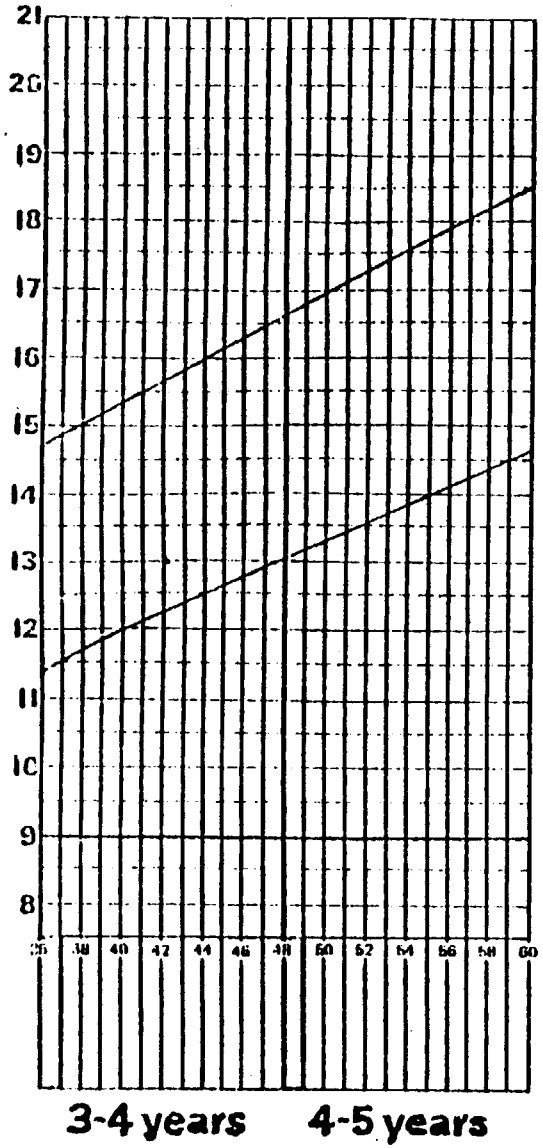
- Sultrin Creme Intravaginal

Family Planning

- IUD
- Condoms
- Pill

APPENDIX K

Sample of Home Based Child Medical Record



Road to Health Chart

Clinic	Child's no.

Child's name

Boy/Girl

Mother's name — Registration No.

Father's name — Registration No.

Date first seen	Birthday-birthweight

Where the family live: address

BROTHERS AND SISTERS

Year of birth	Boy/Girl	Remarks

ANTI TUBERCULOSIS IMMUNISATION (BCG)

Date of BCG immunisation .....

.....

IMMUNISATION

Date of immunisation .....

Date of scar inspection .....

Date of reimmunisation .....

POLIOMYELITIS IMMUNISATION

Date of first immunisation .....

Date of second immunisation .....

Date of third immunisation .....

WHOOPING COUGH, TETANUS & DIPHTHERIA IMMUNISATION

Date of first immunisation .....

Date of second immunisation .....

Date of third immunisation .....

MEASLES IMMUNISATION

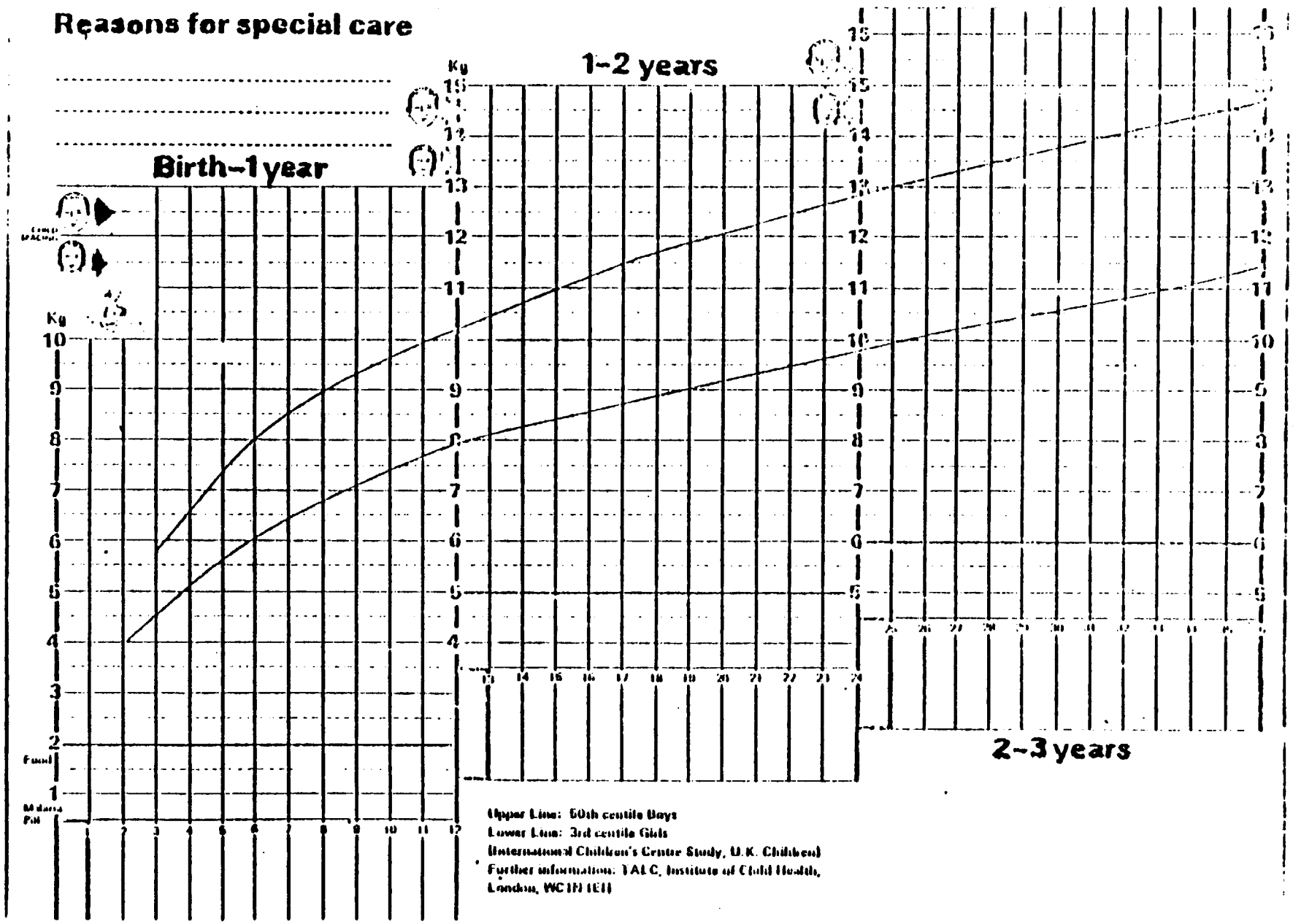
Date of immunisation .....

OTHER IMMUNISATIONS

.....

.....

Reasons for special care



APPENDIX L

Diabetes Epidemiologic Research Study

TOPIC:

Epidemiological study of Diabetes in the Marshall Islands.

PURPOSE:

To aid in the development of a comprehensive Diabetes Health Care System in the Marshall Islands.

GOAL :

To determine lifestyle factors associated with Diabetes in the Marshall Islanders.

GIVEN:

The prevalence of Diabetes in the Marshall Islands (from initial health and medical history questionnaire).

CASE CONTROL STUDY:

Cases = All known cases diagnosed by a positive answer to question: "Are you taking Diabetes medication?" ie either pills or insulin.

Options

1. The case group may consist of a random sample of 1000 instead of all cases.

2. The case group may consist of 2 subgroups of Diabetics indigenous and westernized.

Controls = Sex, age, race, matched controls without Diabetes diagnosed by a negative answer to above question.

Variables Measured

Life Style

1. Diet (measured by 24 hour dietary recall or by daily log)
   a. Simple Carbohydrate Intake
   b. Unrefined Complex Carbohydrate Intake
   c. Dietary Fat Intake
2. Regular cardiovascular exercise.
3. Biochemical data e.g. Urin & Blood Sugar

Food Sources

Water Sources

Geographic residence local

1. Island of longest residence
2. Island of birth
3. Urban or rural

TOPIC: Epidemiological study of Diabetes in the Marshall Islands (continued).

CASE CONTROL STUDY: (continued).

Variables Measured (continued).

Atomic Radiation Exposure History.

Family or Relatives Diabetes History.

Diabetes Medication.

Percent Over Ideal Weight.

BUDGET FOR A 2 YEAR STUDY:

	Year 1		Year 2		
	Person Years	*Salary	Person Years	*Salary	
Personnel for 2 years					$ 150,000.00
Field Director Dr PH Candidate	1.0	$20,000.	1.0	$20,000.	
Statistical Programmer	0.4	11,733.	0.35	10,267.	
Clerical Personnel					
Secretary	1.0	20,000.	1.0	20,000.	
Clerks	1.0	14,000.	1.0	14,000.	
Interviewers	2.0	15,000.	1.0	5,000.	
TOTALS:		$ 80,733.		$ 69,267.	
Travel Over 2 Years					2,000.00
Field Director		2 round trips		1,000.	
Programmer		2 round trips		1,000.	
Per Diem Expenses over 2 years					3,000.00
Supplies					1,500.00
Miscellaneous Expenses					1,000.00
Data Handling (2000 questionnaires, 240 columns each)					12,000.00
Initial Computer Hardware					10,000.00 *
TOTAL :					$179,500.00

* includes fringe and overhead (equals salary plus 83%)

Initial Computer Hardware

Cost Breakdown

2 CRT Terminals ($1000. X 2)	$2,000.00
1 Dot-Matrix Printer Dec Writer II	3,800.00
2 Disc Drives 8" either floppy disc drives or hard disc drives 10 MB with streamer cartridge drive	
1 Fortran	
1 Basic	
1 Operating System - multi user multi tasking	
1 CPU - 64K words interfaces for above devices	4,200.00
TOTAL	$ 10,000.00

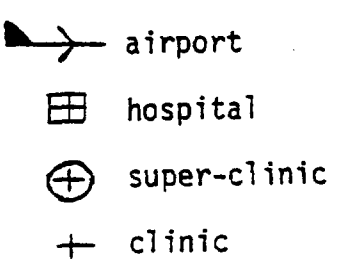
APPENDIX M

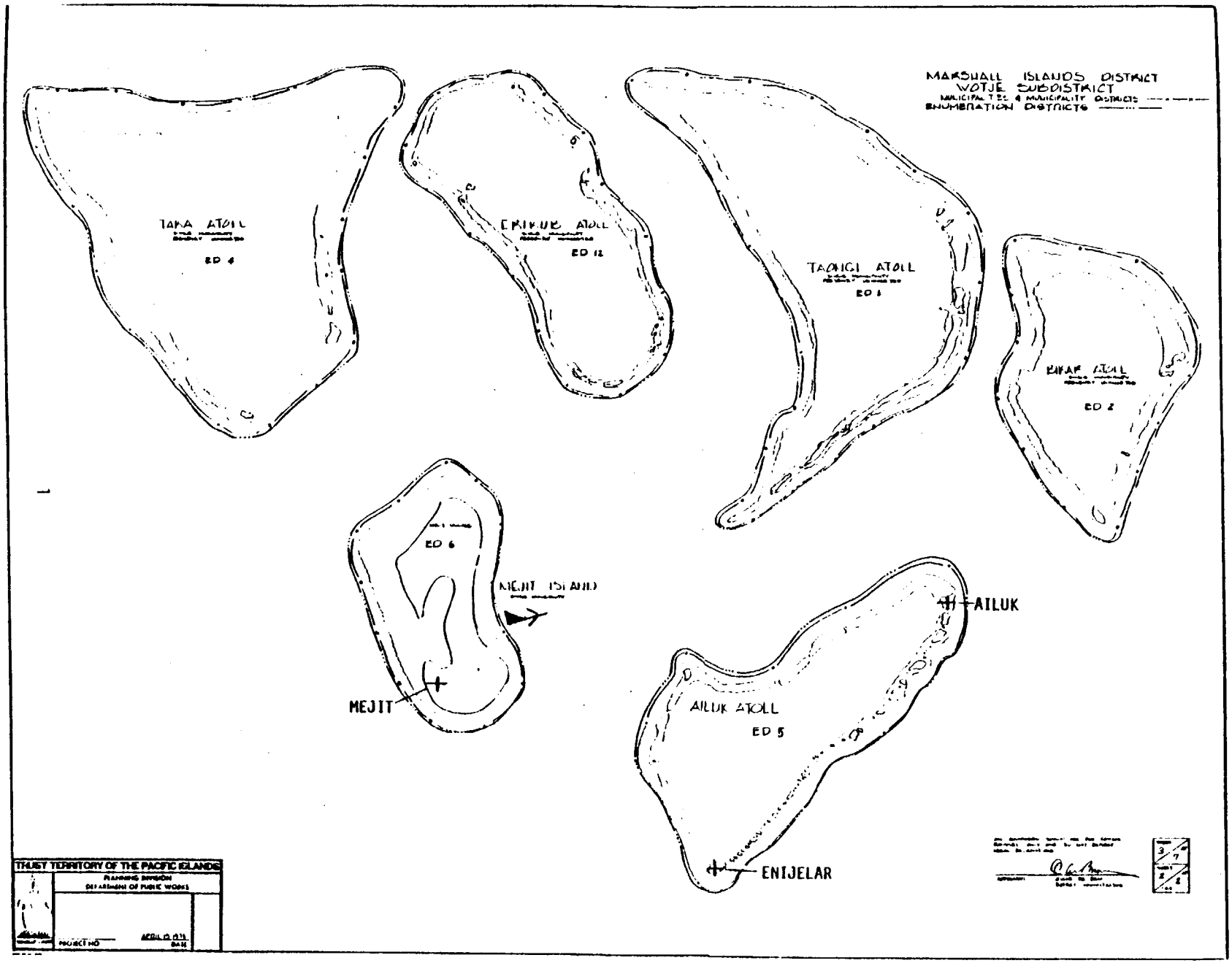
Maps

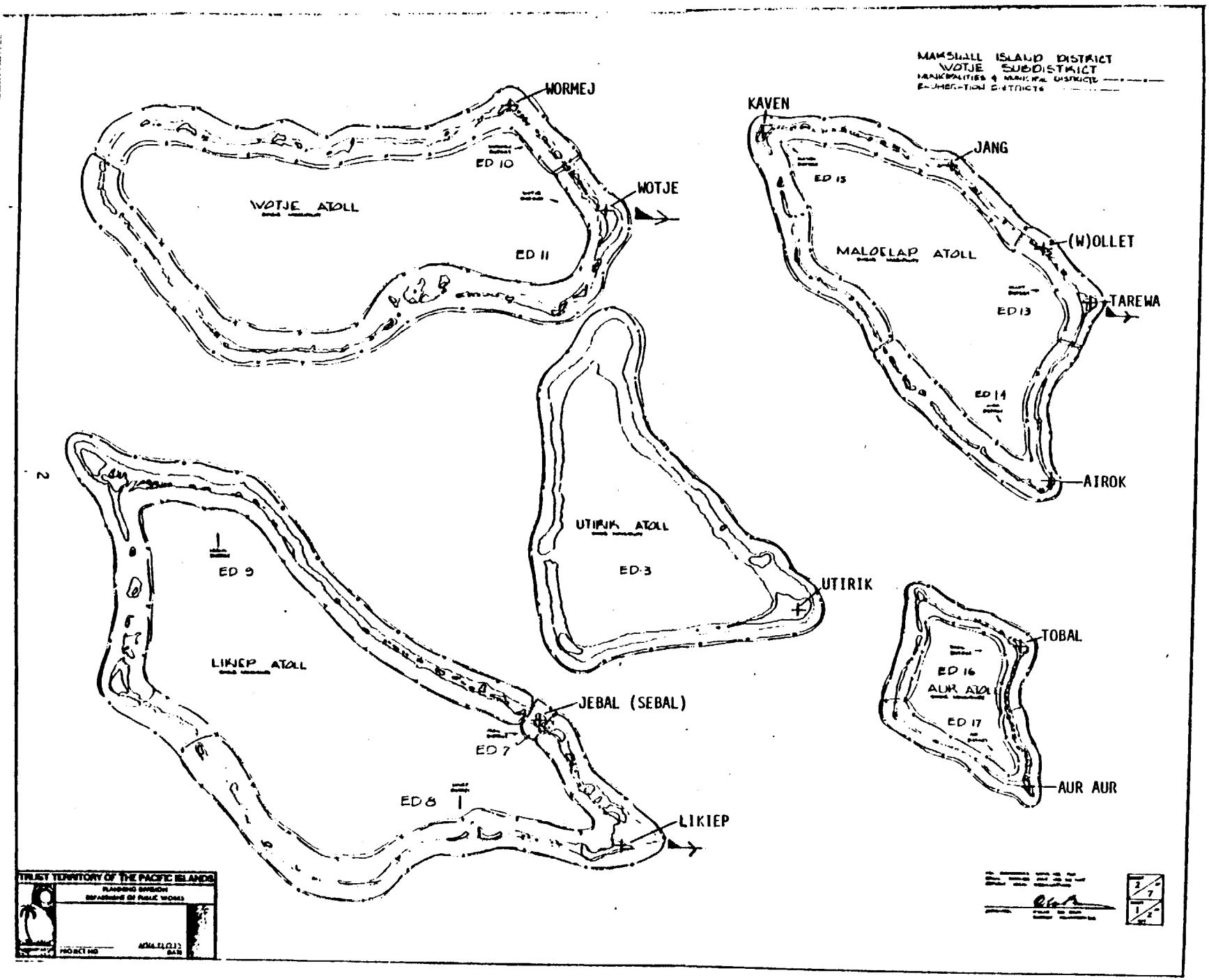
APPENDIX M

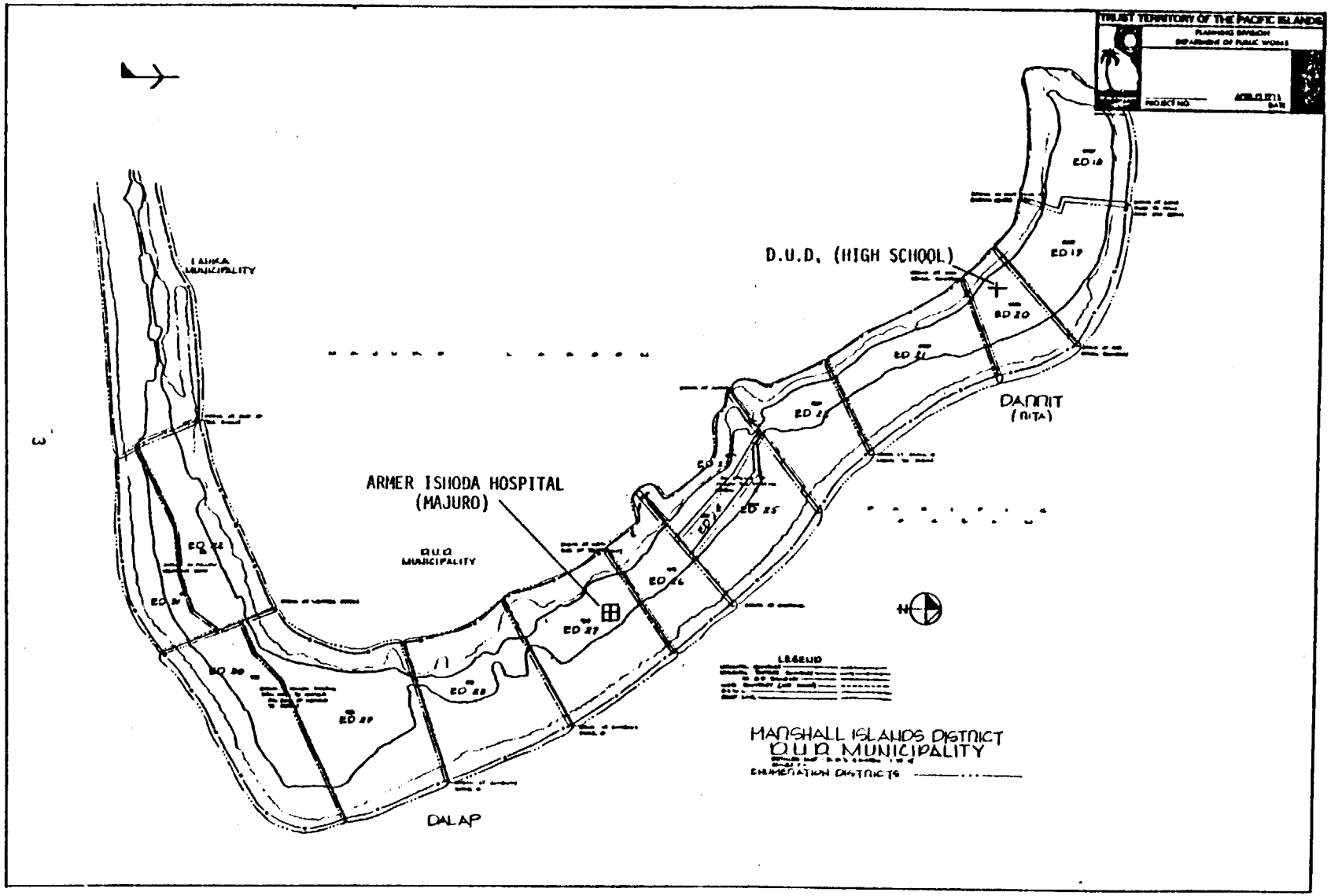
M A P S

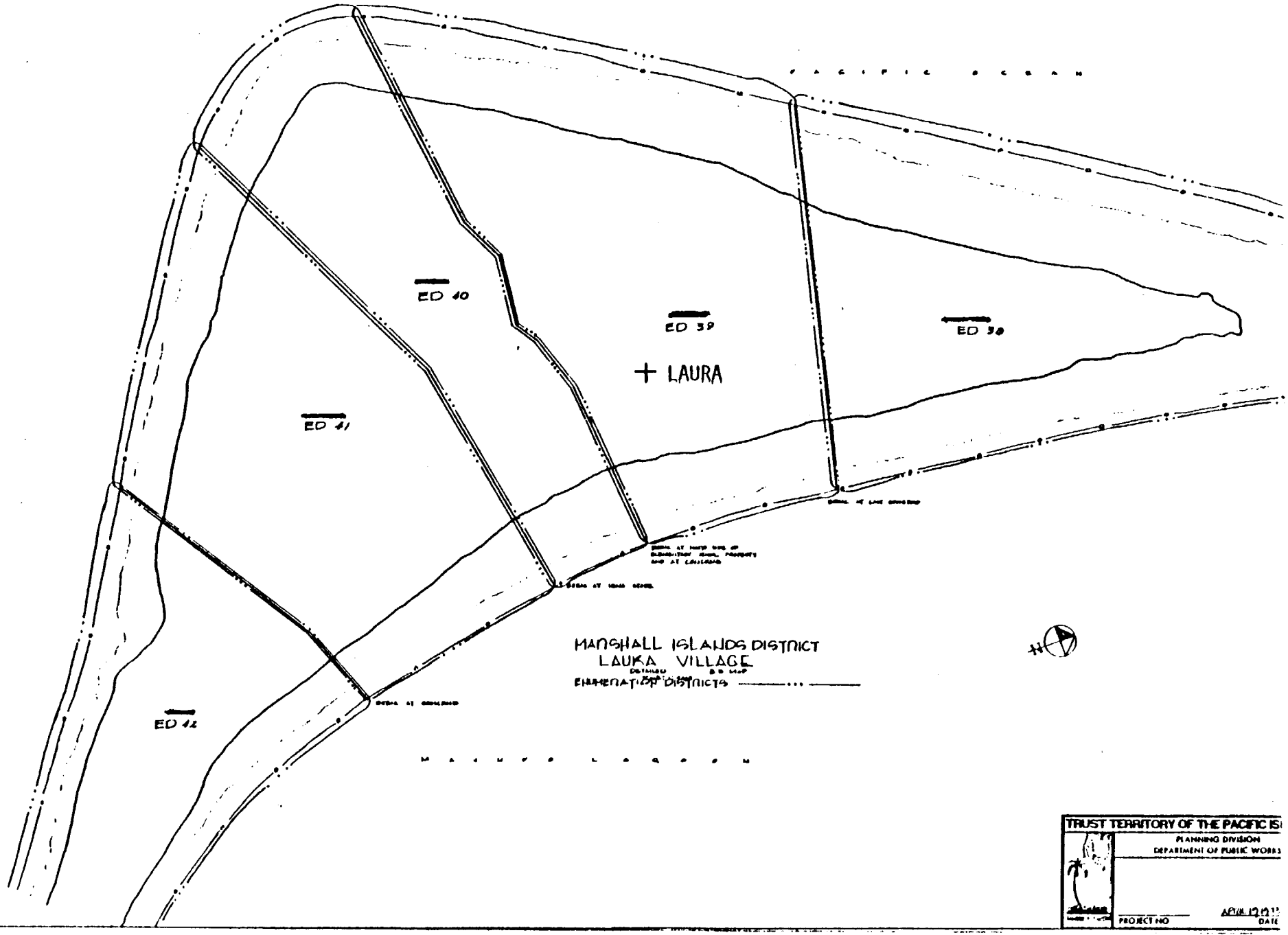
Key:

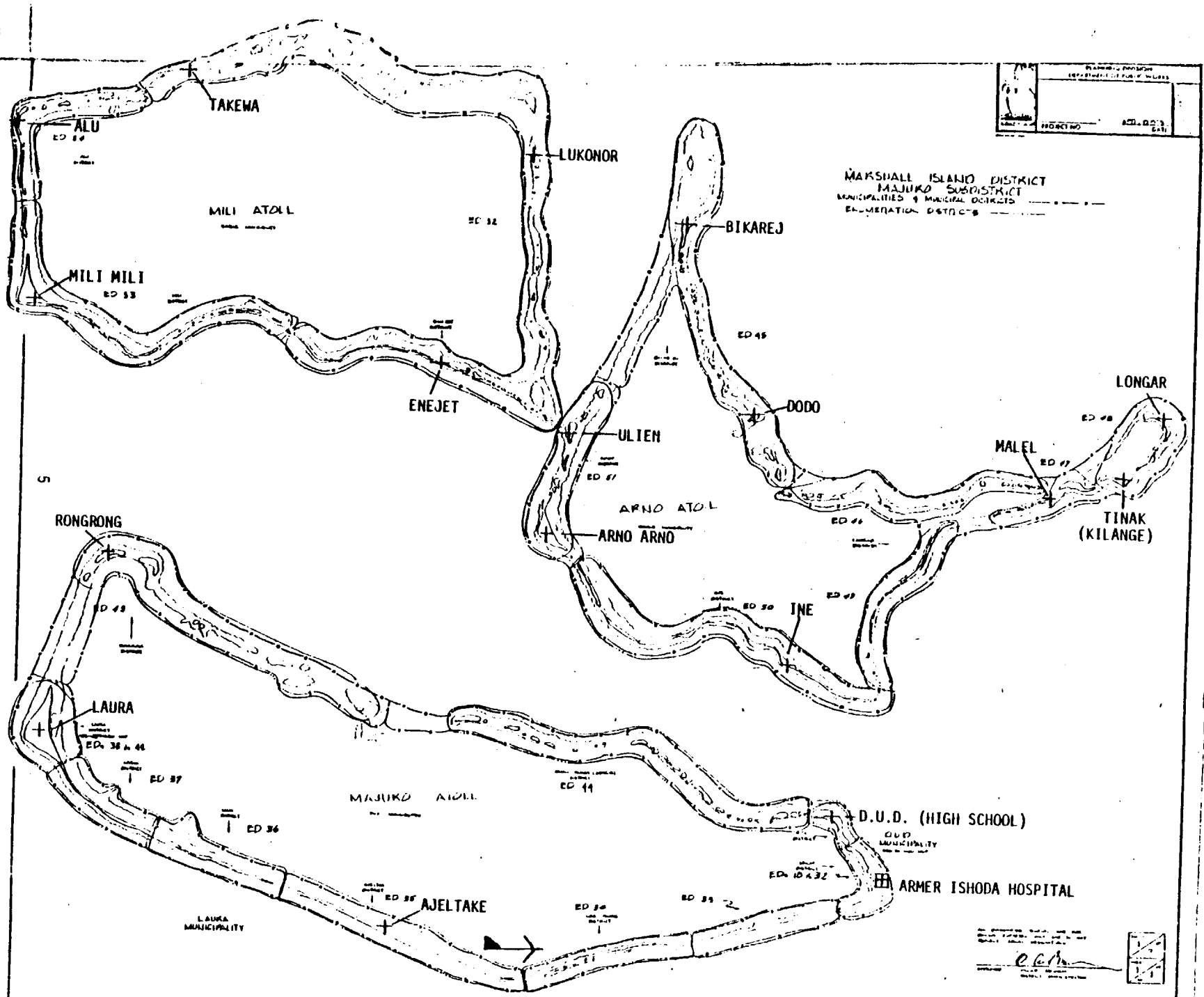


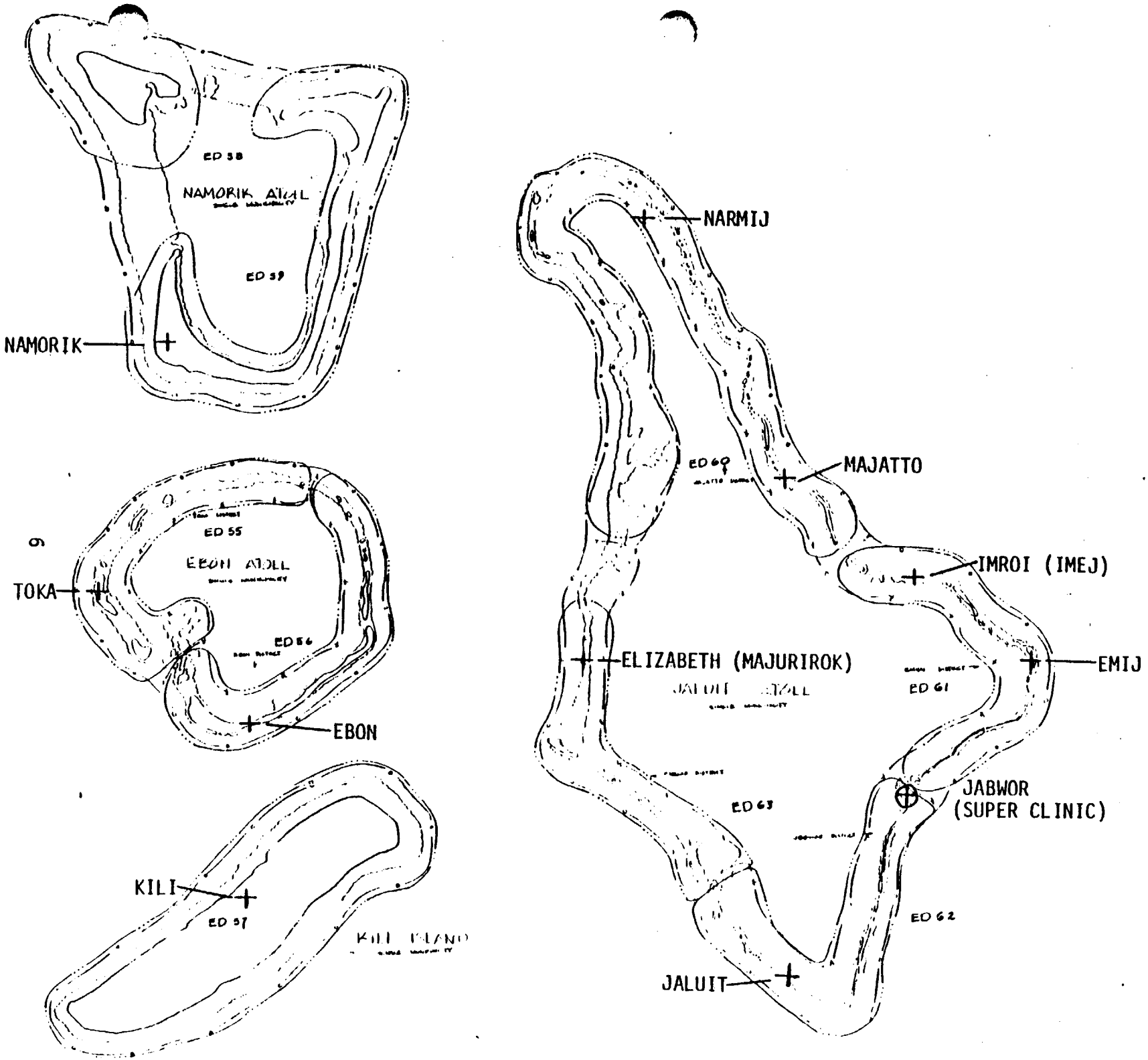

MARSHALL ISLANDS DISTRICT
WOTJE SUBDISTRICT
MUNICIPAL TEL & MUNICIPALITY DISTRICTS
ENUMERATION DISTRICTS
TAKA ATOLL
ED 4
ERIKUB ATOLL
ED 12
TAONGI ATOLL
ED 1
ERIKUB ATOLL
ED 2
ED 6
MEJIT ISLAND
MEJIT
AILUK
AILUK ATOLL
ED 5
ENIJELAR
TRUST TERRITORY OF THE PACIFIC ISLANDS
PLANNING DIVISION
DEPARTMENT OF PUBLIC WORKS
PROJECT NO

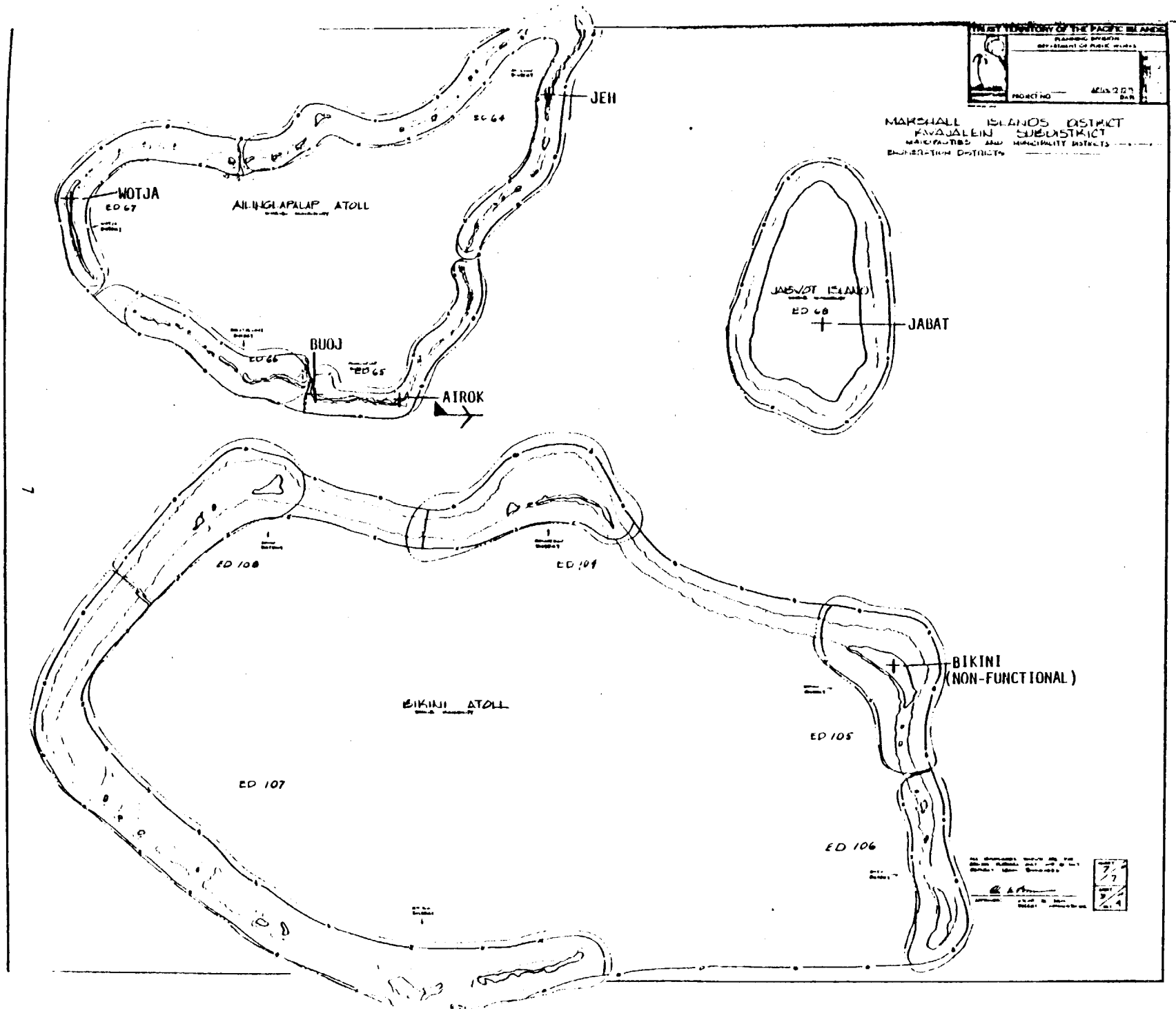

MARSHALL ISLAND DISTRICT
WOTJE SUBDISTRICT
MUNICIPALITIES & MUNICIPAL DISTRICTS
ENUMERATION DISTRICTS
WORMEJ
ED 10
WOTJE
WOTJE ATOLL
ED 11
KAVEN
JANG
ED 15
(W)OLLET
MALOELAP ATOLL
TAREWA
ED 13
ED 14
AIROK
UTIRIK ATOLL
ED 3
UTIRIK
ED 9
LIKIEP ATOLL
JEBAL (SEBAL)
ED 7
ED 8
LIKIEP
TOBAL
ED 16
AUR ATOLL
ED 17
AUR AUR
TRUST TERRITORY OF THE PACIFIC ISLANDS
PLANNING DIVISION
DEPARTMENT OF PUBLIC WORKS
PROJECT NO
AREA
DATE

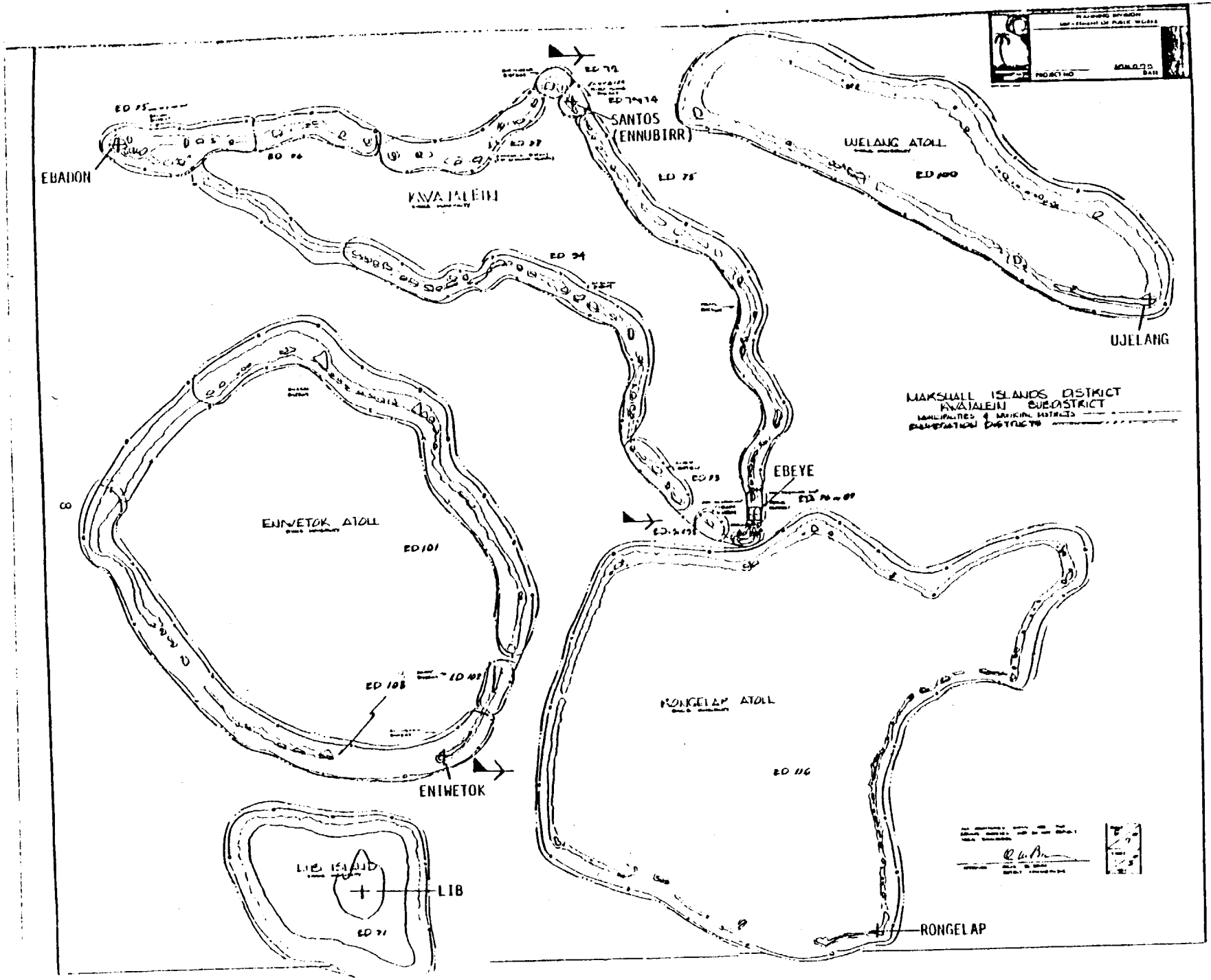

TRUST TERRITORY OF THE PACIFIC ISLANDS
PLANNING DIVISION
DEPARTMENT OF PUBLIC WORKS
PROJECT NO
DRAWN
DATE
D.U.D. (HIGH SCHOOL)
DARRIT
(RITA)
ARMER ISHODA HOSPITAL
(MAJURO)
D.U.D.
MUNICIPALITY
LAIKA
MUNICIPALITY
DALAP
ED 18
ED 19
ED 20
ED 21
ED 22
ED 23
ED 24
ED 25
ED 26
ED 27
ED 28
ED 29
ED 30
LEGEND
MARSHALL ISLANDS DISTRICT
D.U.D. MUNICIPALITY
ENUMERATION DISTRICTS

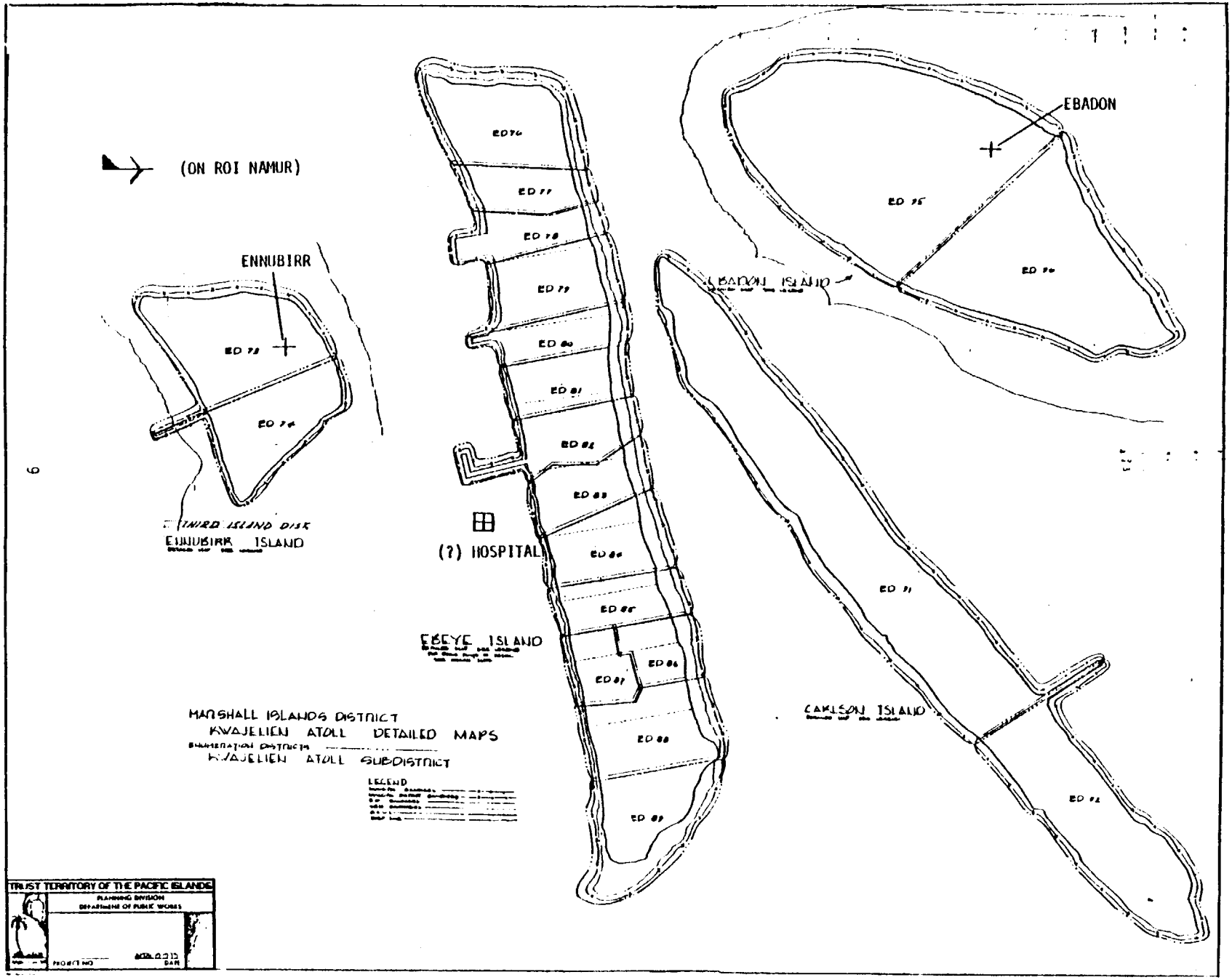

P A C I F I C O C E A N
ED 40
ED 39
ED 38
LAURA
ED 41
ED 42
M A J U R O L A G O O N
MARSHALL ISLANDS DISTRICT
LAUKA VILLAGE
ENUMERATION DISTRICTS
TRUST TERRITORY OF THE PACIFIC IS
PLANNING DIVISION
DEPARTMENT OF PUBLIC WORKS
PROJECT NO
APRIL 1971
DATE

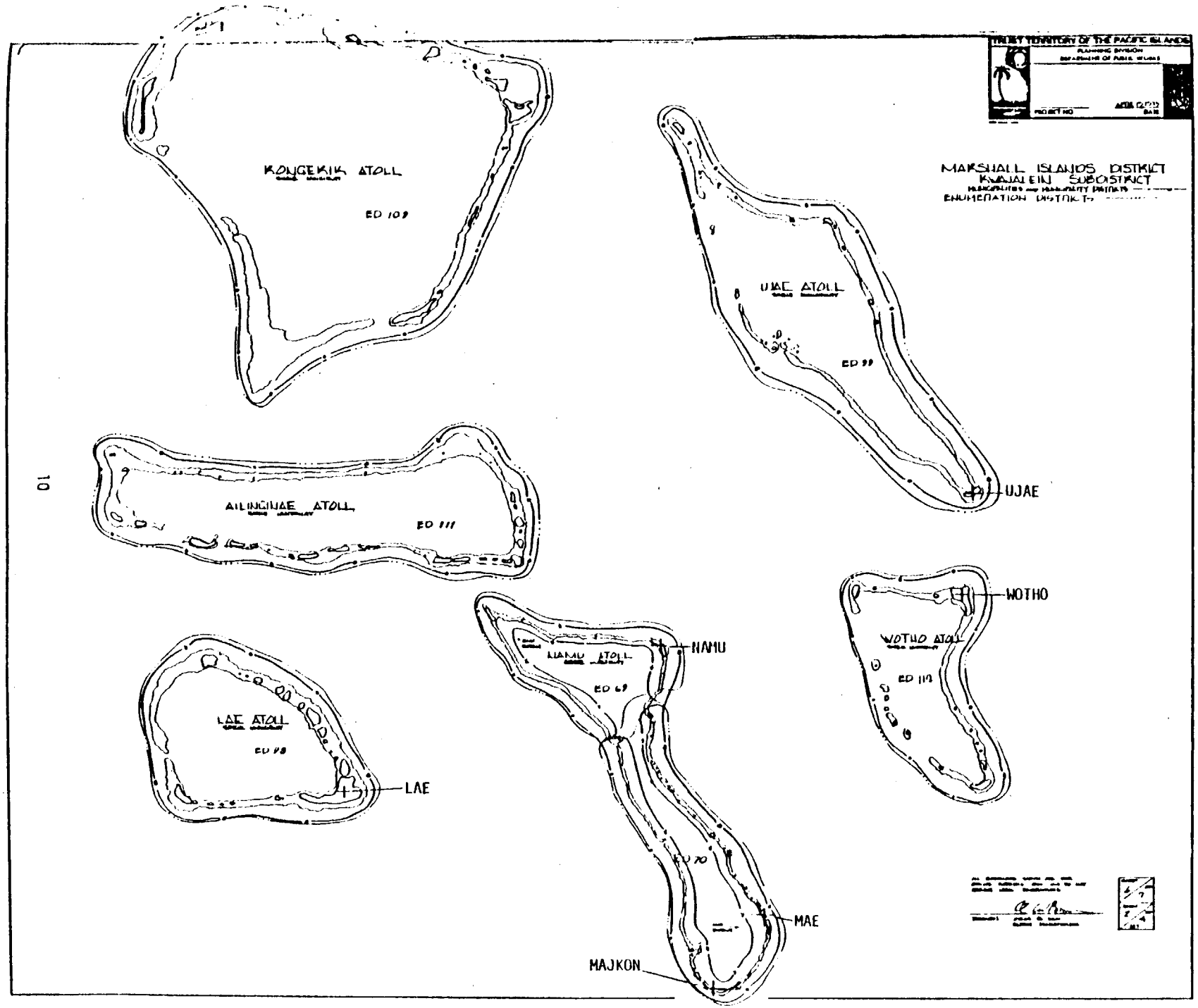

MARSHALL ISLAND DISTRICT
MAJURO SUBDISTRICT
MUNICIPALITIES & MARGINAL DISTRICTS
ENUMERATION DISTRICTS
TAKEWA
ALU
LUKONOR
MILI ATOLL
MILI MILI
ENEJET
BIKAREJ
DODO
LONGAR
ULIEN
MALEL
TINAK
(KILANGE)
ARNO ATOLL
ARNO ARNO
RONGRONG
INE
LAURA
MAJURO ATOLL
D.U.D. (HIGH SCHOOL)
ARMER ISHODA HOSPITAL
AJELTAKE
LAURA
MUNICIPALITY


ED 58
NAMORIK ATOLL
ED 59
NAMORIK
ED 55
EBON ATOLL
ED 56
TOKA
EBON
KILI
ED 57
KILI ISLAND
NARMIJ
ED 60
MAJATTO
IMROI (IMEJ)
ELIZABETH (MAJURIROK)
JALUIT ATOLL
ED 61
EMIJ
ED 63
JABWOR
(SUPER CLINIC)
ED 62
JALUIT


JEH
WOTJA
ED 67
ED 64
AILINGLAPALAP ATOLL
BUOJ
ED 66
ED 65
AIROK
JABWOT ISLAND
ED 68
JABAT
ED 108
ED 109
BIKINI
(NON-FUNCTIONAL)
BIKINI ATOLL
ED 105
ED 107
ED 106
MARSHALL ISLANDS DISTRICT
KWAJALEIN SUBDISTRICT


EBADON
KWAJALEIN
SANTOS
(ENNUBIRR)
UELANG ATOLL
UJELANG
MARSHALL ISLANDS DISTRICT
KWAJALEIN SUBDISTRICT
EBEYE
ENIWETOK ATOLL
ENIWETOK
RONGELAP ATOLL
RONGELAP
LIB ISLAND
LIB


(ON ROI NAMUR)
ENNUBIRR
ED 73
ED 74
ED 76
ED 77
ED 78
ED 79
ED 80
ED 81
ED 82
ED 83
ED 84
ED 85
ED 86
ED 87
ED 88
ED 89
(?) HOSPITAL
EBEYE ISLAND
EBADON
ED 95
ED 96
EBADON ISLAND
ED 91
CARLSON ISLAND
ED 92
MARSHALL ISLANDS DISTRICT
KWAJELIEN ATOLL DETAILED MAPS
ENUMERATION DISTRICTS
KWAJELIEN ATOLL SUBDISTRICT
LEGEND
TRUST TERRITORY OF THE PACIFIC ISLANDS
PLANNING DIVISION
DEPARTMENT OF PUBLIC WORKS


TRUST TERRITORY OF THE PACIFIC ISLANDS
PLANNING DIVISION
DEPARTMENT OF PUBLIC WORKS
PROJECT NO
MARSHALL ISLANDS DISTRICT
KWAJALEIN SUBDISTRICT
MUNICIPALITIES AND MAJURO ATOLL DISTRICT
ENUMERATION DISTRICTS
KONGEKIK ATOLL
ED 109
UJAE ATOLL
ED 99
UJAE
AILINGINAE ATOLL
ED 111
WOTHO
WOTHO ATOLL
ED 110
NAMU
NAMU ATOLL
ED 69
LAE ATOLL
ED 98
LAE
ED 70
MAE
MAJKON
10

APPENDIX N

Vital Statistics Forms

ACCIDENTS CAN BE PREVENTED. PROTECT YOUR CHILD FROM ACCIDENTS AND TEACH HIM THE VALUE OF "PLAYING" SAFE.

Keep kerosene, other poisons, medicine, pills, paint, and similar items out of reach of your child. Never leave the child alone in the bathtub, or washtub near a pond, or at the beach.

Falls from stairs, tables, beds, play equipment and trees are common. Be alert to these dangers.

Your car or motor bike does not have eyes—use yours when backing out of garage or driveway.

Buy safe toys: —breakable toys, toys with small removable parts, or toys with sharp edges are dangerous.

Keep plastic bags, sheets or plastic mattress covers or any airtight or clinging plastic away from children. Thin flexible plastic can shut off air. It may cling to the nose and mouth causing suffocation and death!

CHILD HEALTH-MICRONESIA'S WEALTH

HOSPITAL NUMBER

APPOINTMENT BOOK FOR WELL BABY CLINIC

_____
(Name of Clinic)

_____
(Time)

NAME OF CHILD _____

DISTRICT _____

ISLAND _____

TRUST TERRITORY-DEPARTMENT OF PUBLIC HEALTH
TT 846 (Rev. 2/71)

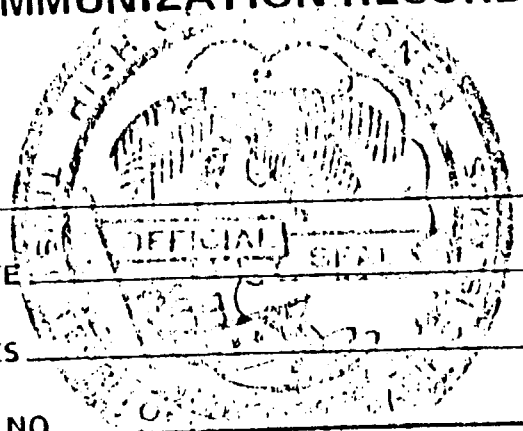
This appointment means the time is saved especially for you.
Please make appointment before clinic.

If you cannot keep your appointment, notify the nurse.

Date	Weight	Immunization	Special Notes	Return Date	Date	Weight	Immunization	Special Notes	Return Date

If your child should become sick, take to your doctor.

IMMUNIZATION RECORD



NAME _____

BIRTHDATE _____

ALLERGIES _____

HOSPITAL NO. _____

RETAIN THIS DOCUMENT

VACCINE		DATE GIVEN	DOCTOR OR CLINIC	MEDICAL NOTES	DATE NEXT DUE
TOPV Trivalent Oral Polio Vaccine	1				
	2				
	3				
	4				
	5				
DTP/TD Diphtheria, Tetanus & Pertussis	1				
	2				
	3				
	4				
	5				
MEASLES					
RUBELLA					
MUMPS					
OTHER					

PRESENT THIS RECORD AT EACH VISIT

IMMUNIZATION SCHEDULES (as of 1/1/80)

TABLE I

RECOMMENDED ROUTINE CHILDHOOD IMMUNIZATION SCHEDULE

AGE	
2 months	DPT No. 1 TOPV No. 1
4 months	DPT No. 2 TOPV No. 2
6 months	DPT No. 3
15 months	** MMR (Measles, Mumps, Rubella)
18 months	DPT No. 4 TOPV No. 3
4-6 years	DPT No. 5 TOPV No. 4

Every 10 years Td (Tetanus and Diphtheria toxoids - adult type)

TABLE II

SCHEDULE FOR CHILDREN NOT IMMUNIZED IN EARLY INFANCY *

AGE	UNDER 7 YEARS OF AGE
First Visit	DPT No. 1 TOPV No. 1
INTERVAL AFTER FIRST VISIT	
1 Month	** MMR (Measles, Mumps, Rubella)
2 months	DPT No. 2 TOPV No. 2
4 months	DPT No. 3
10 to 18 months or preschool	DPT No. 4 TOPV No. 3
14 to 18 Years	Td - repeat every 10 years

TABLE III

SCHEDULE FOR CHILDREN NOT PREVIOUSLY IMMUNIZED

AGE	7 YEARS OF AGE AND OVER
First visit	Td No. 1 TOPV No. 1
INTERVAL AFTER VISIT	
1 month	** MMR (Measles, Mumps, Rubella)
2 months	Td No. 2 TOPV No. 2
8 to 14 months	Td No. 3 TOPV No. 3
14 to 18 Years	Td - repeat every 10 years

* Physicians may choose to alter the sequence of these schedules if specific infections are prevalent at the time. For example, measles vaccine might be given on the first visit if an epidemic is underway in the community.

** Administration of MMR along with DPT and TOPV on the first visit is also acceptable if followup is questionable

TT No. 848

TT FORM 233
Rev. Nov 1959

TRUST TERRITORY OF THE PACIFIC ISLANDS
DEPARTMENT OF PUBLIC HEALTH

WORKSHEET OUTLYING DISPENSARY REPORT

(1) DISTRICT AND DISPENSARY _____ (2) SIGNATURE AND TITLE _____ (3) MONTH AND YEAR _____

DATE (4)	NAME (5)	AGE (6)	SEX (7)	CONDITION OR SYMPTOM (8)	TREATMENT (9)	IN PATIENT NO OF DAYS (10)	(11) DISP VISIT CHECK ONE		(12) HOME VISIT CHECK ONE		AMOUNT COLLECTED (13)
							FIRST* (11a)	RETURN (11b)	FIRST* (12a)	RETURN (12b)	

*FIRST VISIT MEANS THE FIRST TIME A PATIENT COMES IN A YEAR THAT BEGINS JANUARY 1. IT IS THE FIRST VISIT IN A YEAR FOR ONE SICKNESS OR CONDITION. IF THE PATIENT COMES FOR ANOTHER KIND OF SICKNESS OR CONDITION IN THE SAME YEAR CHECK FIRST VISIT AGAIN.

CERTIFICATE OF LIVE BIRTH

TRUST TERRITORY OF THE PACIFIC ISLANDS

TYPE OR PRINT IN PERMANENT INK SEE HANDBOOK FOR INSTRUCTIONS

REGISTRATION DISTRICT AND FILE NO.

CHILD — NAME (FIRST, MIDDLE, LAST) — DATE FIRST NAME ADDED BY CLERK OF COURTS

DATE OF BIRTH (MONTH, DAY, YEAR) — SEX — THIS BIRTH (SINGLE, TWIN, TRIPLET, ETC., SPECIFY) — IF NOT SINGLE (BORN FIRST, SECOND, THIRD, ETC., SPECIFY) — TRUST TERRITORY DISTRICT OF BIRTH

ATOLL OR ISLAND GROUP OF BIRTH — HOSPITAL OR DISPENSARY — NAME (IF NOT IN EITHER, GIVE VILLAGE, MUNICIPALITY, ISLAND)

MOTHER — MAIDEN NAME (FIRST, MIDDLE, LAST) — AGE AT TIME OF THIS BIRTH — TRUST TERRITORY DISTRICT OF BIRTH (IF NOT TT, NAME COUNTRY)

RESIDENCE — TRUST TERRITORY DISTRICT — ATOLL OR ISLAND GROUP — VILLAGE OR HAMLET, MUNICIPALITY, ISLAND

FATHER — NAME (FIRST, MIDDLE, LAST) — AGE AT TIME OF THIS BIRTH — TRUST TERRITORY DISTRICT OF BIRTH (IF NOT TT, NAME COUNTRY)

INFORMANT — RELATION TO CHILD — DATE INFORMATION WAS GIVEN

I CERTIFY THAT THE ABOVE NAMED CHILD WAS BORN ALIVE AT THE PLACE AND ON THE DATE SPECIFIED ABOVE — DATE SIGNED (MONTH, DAY, YEAR)

CERTIFIER — NAME (TYPE OR PRINT) — ATTENDANT — PHYSICIAN, GRADUATE NURSE, HEALTH AIDE, MIDWIFE (SPECIFY)

I CERTIFY THAT I REVIEWED THIS CERTIFICATE FOR COMPLETENESS AND ACCURACY — SIGNATURE OF DISTRICT DIRECTOR OF HEALTH SERVICES OR AUTHORIZED DEPUTY — DATE SIGNED (MONTH, DAY, YEAR)

NAME OF CLERK OF COURTS — SIGNATURE — DATE RECEIVED BY CLERK OF COURTS (MONTH, DAY, YEAR)

DEPARTMENT OF HEALTH SERVICES — 1968 REVISION

CONFIDENTIAL MEDICAL INFORMATION

PREVIOUS DELIVERIES — HOW MANY OTHER CHILDREN — ARE NOW LIVING — WERE BORN ALIVE — HOW DEAD — WERE BORN DEAD (FETAL DEATH AT ANY TIME AFTER CONCEPTION) — DATE OF LAST LIVE BIRTH (MONTH, DAY, YEAR) — DATE OF LAST FETAL DEATH (MONTH, DAY, YEAR)

LENGTH OF PREGNANCY COMPLETED (WEEKS) — BIRTH WEIGHT — COMPLICATIONS RELATED TO PREGNANCY (DESCRIBE OR WRITE "NONE")

COMPLICATIONS NOT RELATED TO PREGNANCY (DESCRIBE OR WRITE "NONE") — COMPLICATIONS OF LABOR (DESCRIBE OR WRITE "NONE")

BIRTH INJURIES TO CHILD (DESCRIBE OR WRITE "NONE") — CONGENITAL MALFORMATIONS OR ANOMALIES OF CHILD (DESCRIBE OR WRITE "NONE")

TT FORM 200 (11-68)

TYPE OR PRINT IN PERMANENT INK SEE HANDBOOK FOR INSTRUCTIONS

CERTIFICATE OF DEATH

TRUST TERRITORY OF THE PACIFIC ISLANDS

REGISTRATION DISTRICT AND FILE NO.

DECEASED — NAME (FIRST, MIDDLE, LAST) — SEX — DATE OF DEATH (MONTH, DAY, YEAR)

AGE — LAST BIRTHDAY (YEARS) — UNDER 1 YEAR (MOS., DAYS) — UNDER 1 DAY (CHECK) — DATE OF BIRTH (MONTH, DAY, YEAR) — TRUST TERRITORY DISTRICT OF DEATH

ATOLL OR ISLAND GROUP OF DEATH — HOSPITAL OR DISPENSARY — NAME (IF NOT IN EITHER, GIVE VILLAGE, MUNICIPALITY, ISLAND) — HOSPITAL UNIT RECORD NUMBER

DISTRICT AND ISLAND OF BIRTH (IF NOT TT, NAME COUNTRY) — CITIZEN OF WHAT COUNTRY — MARRIED, NEVER MARRIED, WIDOWED, DIVORCED (SPECIFY) — SURVIVING SPOUSE (IF WIFE, GIVE MAIDEN NAME)

SOCIAL SECURITY NUMBER — USUAL OCCUPATION (GIVE KIND OF WORK DONE DURING MOST OF WORKING LIFE, EVEN IF RETIRED) — KIND OF BUSINESS OR INDUSTRY

RESIDENCE — TRUST TERRITORY DISTRICT — ATOLL OR ISLAND GROUP — VILLAGE OR HAMLET, MUNICIPALITY, ISLAND

FATHER — NAME (FIRST, MIDDLE, LAST) — MOTHER — MAIDEN NAME (FIRST, MIDDLE, LAST)

INFORMANT — NAME — ADDRESS — DATE INFORMATION WAS GIVEN

PART I. DEATH WAS CAUSED BY: (ENTER ONLY ONE CAUSE PER LINE FOR (a), (b) AND (c).) — APPROXIMATE INTERVAL BETWEEN ONSET AND DEATH

(a) IMMEDIATE CAUSE

CONDITIONS, IF ANY, WHICH GAVE RISE TO IMMEDIATE CAUSE (a), STATING THE UNDERLYING CAUSE LAST

(b) DUE TO, OR AS A CONSEQUENCE OF:

(c) DUE TO, OR AS A CONSEQUENCE OF:

(d)

PART II. OTHER SIGNIFICANT CONDITIONS: CONDITIONS CONTRIBUTING TO DEATH BUT NOT RELATED TO CAUSE GIVEN IN PART I (a) — AUTOPSY (YES OR NO)

I CERTIFY THAT I ATTENDED THE DECEASED AND THAT DEATH OCCURRED ON THE DATE AND TO THE BEST OF MY KNOWLEDGE FROM THE CAUSES SHOWN — NAME OF PHYSICIAN — SIGNATURE — DATE SIGNED (MONTH, DAY, YEAR)

OFFICIAL REPORT AND FINDINGS OF INVESTIGATION WHERE APPLICABLE WERE REVIEWED BY — NAME OF PHYSICIAN — SIGNATURE — DATE SIGNED (MONTH, DAY, YEAR)

ACCIDENT, HOMICIDE, SUICIDE, OR UNDETERMINED (SPECIFY) — DATE OF INJURY (MONTH, DAY, YEAR) — HOW INJURY OCCURRED (ENTER NATURE OF INJURY IN PART I OR PART II, ITEM 17)

INJURY AT WORK (YES OR NO) — PLACE OF INJURY (HOME, FARM, ROAD, DOCK, ETC.) — LOCATION (VILLAGE, HAMLET, ETC.)

I CERTIFY THAT I HAVE REVIEWED THIS CERTIFICATE FOR COMPLETENESS AND ACCURACY (I HAVE ADDED INFORMATION ON INJURY WHEN APPLICABLE) — SIGNATURE DISTRICT DIRECTOR OF HEALTH SERVICES OR AUTHORIZED DEPUTY (DEGREE OR TITLE) — DATE SIGNED (MONTH, DAY, YEAR)

NAME OF CLERK OF COURTS — SIGNATURE — DATE RECEIVED BY CLERK OF COURTS (MONTH, DAY, YEAR)

DEPARTMENT OF HEALTH SERVICES — 1968 REVISION

TT FORM 201 (11-68)

CERTIFICATE OF FETAL DEATH

TRUST TERRITORY OF THE PACIFIC ISLANDS

TYPE OR PRINT IN PERMANENT INK. SEE HANDBOOK FOR INSTRUCTIONS

REGISTRATION DISTRICT AND FILE NO.

CHILD	NAME	FIRST	MIDDLE	LAST	DATE OF DELIVERY (MONTH, DAY, YEAR)
	SEX	TYPE OF DELIVERY (SINGLE, TWIN, TRIPLET, ETC. SPECIFY)	IF NOT SINGLE - BORN FIRST, SECOND, THIRD, ETC. SPECIFY)		TRUST TERRITORY DISTRICT OF DELIVERY
PLACE OF DELIVERY	ATOLL OR ISLAND GROUP OF DELIVERY			HOSPITAL OR DISPENSARY NAME	IF NOT IN EITHER, GIVE VILLAGE, MUNICIPALITY, ISLAND
MOTHER	MOTHER - MAIDEN NAME	FIRST	MIDDLE	LAST	AGE AT TIME OF THIS DELIVERY
	TRUST TERRITORY DISTRICT OF BIRTH (IF NOT TT, NAME COUNTRY)				
RESIDENCE	RESIDENCE - TRUST TERRITORY DISTRICT	ATOLL OR ISLAND GROUP		VILLAGE OR HAMLET, MUNICIPALITY, ISLAND	
FATHER	FATHER - NAME	FIRST	MIDDLE	LAST	AGE AT TIME OF THIS DELIVERY
	TRUST TERRITORY DISTRICT OF BIRTH (IF NOT TT, NAME COUNTRY)				
	HUSBAND				RACE (CAUCASIAN, NEGRO, JAPANESE, GUAMANIAN, SAMOAN, OTHER SPECIFY)
CERTIFICATION	I CERTIFY THAT THIS DELIVERY OCCURRED ON THE DATE STATED ABOVE AND THAT THE FETUS WAS BORN DEAD				DATE SIGNED (MONTH, DAY, YEAR)
	11a. SIGNATURE				
	CERTIFIER - NAME (TYPE OR PRINT)				A. DEGREE - PHYSICIAN, GRADUATE NURSE, HEALTH AIDE, MIDWIFE (SPECIFY)
DISTRICT HEALTH SERVICES	I CERTIFY THAT I REVIEWED THIS CERTIFICATE FOR COMPLETENESS AND ACCURACY	SIGNATURE OF DISTRICT DIRECTOR OF HEALTH SERVICES OR AUTHORIZED DEPUTY			DATE SIGNED (MONTH, DAY, YEAR)
	NAME OF CLERK OF COURTS	SIGNATURE			DATE RECEIVED BY CLERK OF COURTS (MONTH, DAY, YEAR)
	DATE OF LAST LIVE BIRTH - CHILDREN NOW LIVING	CHILDREN BORN ALIVE - NOW DEAD	CHILDREN BORN DEAD (FETAL DEATH) AT ANY TIME AFTER CONCEPTION	DATE OF LAST LIVE BIRTH (MONTH, DAY, YEAR)	DATE OF LAST FETAL DEATH (MONTH, DAY, YEAR)
	LENGTH OF PREGNANCY COMPLETED WEEKS	BIRTH WEIGHT	COMPLICATIONS RELATED TO PREGNANCY (DESCRIBE OR WRITE "NONE")		
	COMPLICATIONS NOT RELATED TO PREGNANCY (DESCRIBE OR WRITE "NONE")		COMPLICATIONS OF LABOR (DESCRIBE OR WRITE "NONE")		
	BIRTH INJURIES TO FETUS (DESCRIBE OR WRITE "NONE")		CONGENITAL MALFORMATIONS OR ANOMALIES OF FETUS (DESCRIBE OR WRITE "NONE")		

USE REVISION DEPARTMENT OF HEALTH SERVICES

TT FORM 202 (11-68)

TT FORM 660 (REV. 1066)

TRUST TERRITORY OF THE PACIFIC ISLANDS
DEPARTMENT OF HEALTH SERVICES
NOTICE OF NAME OF CHILD

A ☐ BOY ☐ GIRL WHO HAS NOT YET BEEN NAMED WAS BORN TO:	NAME OF FATHER	NAME OF MOTHER

ADDRESS OF PARENTS:	VILLAGE	MUNICIPALITY	DISTRICT	PLACE OF BIRTH

A " NOTIFICATION OF BIRTH" WILL BE SENT TO THE MOTHER, IF THE FOLLOWING FORM IS PROPERLY FILLED IN AND GIVEN TO THE VITAL REGISTRATION REPRESENTATIVE FOR THAT AREA OR THE DISTRICT DIRECTOR OF HEALTH SERVICES.

THIS FORM MAY BE SENT TO THE DISTRICT DIRECTOR OF HEALTH SERVICES THROUGH ANY HEALTH AIDE, NURSE OR MEDICAL OFFICER

DATE RECEIVED	SIGNATURE (DISTRICT DIRECTOR OF HEALTH SERVICES)

TT FORM 560 (REV. 1068)

CERTIFICATE OF PARENT OR OTHER RELATIVE

I, _____ (STATE RELATIONSHIP TO CHILD, AS "FATHER OR MOTHER") OF ☐ BOY ☐ GIRL (CHECK ONE)

BORN ON _____ (DATE) 19__ AT _____ (PLACE) HEREBY CERTIFY

THAT THE PARENTS OF THE CHILD HAVE AGREED ON THE FOLLOWING NAME FOR HIM OR HER (CROSS OUT ONE) AND REQUEST THAT THIS BE ENTERED UPON THE CHILD'S BIRTH CERTIFICATE:

_____
NAME OF CHILD

_____ 19 _____
DATE SIGNATURE OF PERSON NAMED ABOVE

CERTIFICATE AND OATH OF VITAL REGISTRATION REPRESENTATIVE

I SWEAR THAT THE ABOVE WAS SIGNED PERSONALLY BY THE PERSON NAMED THEREIN AND I AM SATISFIED THAT IT REPRESENTS HIS OR HER TRUE DESIRE.

_____
SIGNATURE OF VITAL REGISTRATION REPRESENTATIVE

SIGNED AND SWORN TO BEFORE ME THIS _____ DAY OF _____ 19____

_____
SIGNATURE OF OFFICIAL AUTHORIZED TO ADMINISTER OATHS

_____
TITLE

(IF MORE CONVENIENT, THE PARENT OR OTHER RELATIVE MAY SWEAR TO HIS OR HER CERTIFICATE BEFORE ANY OFFICIAL AUTHORIZED TO ADMINISTER OATHS, AND THEN THE CERTIFICATE AND OATH OF VITAL REGISTRATION REPRESENTATIVE MAY BE OMITTED.)

GOVERNMENT OF THE MARSHALL ISLANDS
Department of Health Services

Name of Patient: _____ Hosp. No. _____

Sex: _____ Age _____ Date of Registration: _____

Home Atoll (Country): _____

Full Name of Father: _____

Maiden Name of Mother: _____

Jouñ im boktok card in ak kememej number in takta in am ilo ien am itok im takta ilo Majuro Hospital.
Please bring this card with you or remember your hospital number when you come to Majuro Hospital for treatment.

KOMMOL TATA/THANK YOU!

TT FORM 206
(Rev. 10/63)

TRUST TERRITORY OF THE PACIFIC ISLANDS
DEPARTMENT OF MEDICAL SERVICES

MONTHLY REPORT OF DISPENSARY

DISTRICT	LOCATION OF DISPENSARY (Village and Island)	MONTH AND YEAR OF SERVICE

TYPE OF SERVICE	OUT-PATIENTS		TOTAL VISITS	IN-PATIENT SERVICE	
	FIRST VISITS IN CAL. YEAR	RETURN VISITS IN CAL. YEAR		NUMBER OF IN-PATIENTS	NUMBER OF DAYS CARE
1. Treatment of Diseases					
2. Treatment of Injuries					
3. Childbirth – Deliveries					
4. Other Services					
5. TOTAL					

AMOUNT COLLECTED THIS MONTH:	OUT-PATIENT	IN-PATIENT	TOTAL

REMARKS

NAME OF HEALTH AIDE

MEDICAL AND HEALTH RECORD

NAME

LAST FIRST MIDDLE

VILLAGE/HAMLET ISLAND/MUNICIPALITY DISTRICT

M F AGE BIRTHDATE BIRTHPLACE NAME OF SPOUSE

NAME OF MOTHER NAME OF FATHER HOSPITAL NUMBER

FAMILY HISTORY

PERSONAL HISTORY

IMMUNIZATION RECORD

Type	I	II	III	IV	V	VI	VII	VIII
TOPV								
DPT								
Td								
Measles								
Rubella								
Mumps								
Smallpox								
Influenza								

SURVEY RECORD

Type	Date	Results	Type	Date	Results

TT 344 (Rev 4/76)

PHYSICAL EXAMINATION

CODE: 0 - SATISFACTORY; X - UNSATISFACTORY

EXPLAIN ALL ITEMS CODED AS X AND WRITE ALL RECOMMENDATIONS BELOW.

DATE																		
AGE																		
WEIGHT																		
HEIGHT																		
HEAD CIRCUMFERENCE																		
CHEST CIRCUMFERENCE																		
TEMPERATURE																		
PULSE																		
BLOOD PRESSURE																		
SKIN																		
HEAD AND NECK																		
EENT																		
VISION																		
HEARING																		
HEART AND LUNGS																		
ABDOMEN																		
GENITALIA																		
EXTREMITIES																		
NEUROLOGICAL																		
NUTRITION																		

FINDINGS (incl. lab. and x-ray)

TREATMENT REGIMEN

DATE	DATA	#	DATE	DATA	#

NAME OF PATIENT

HOSPITAL UNIT NUMBER

DATE	DATA	#	DATE	DATA

APPENDIX O

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APPENDIX O

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